

THE IRON AGE

A Review of the Hardware, Iron and Metal Trade

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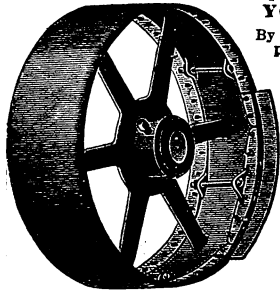
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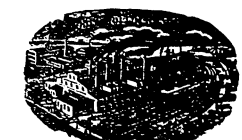
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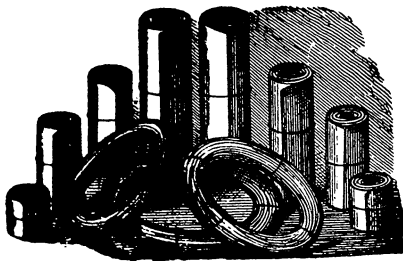
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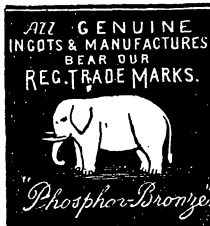
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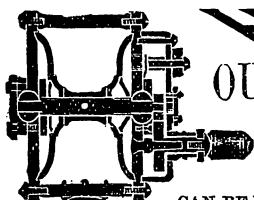
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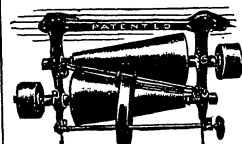
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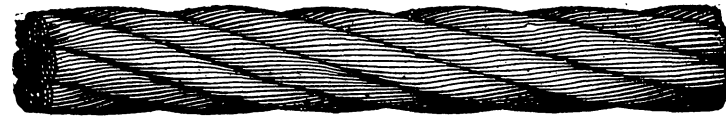
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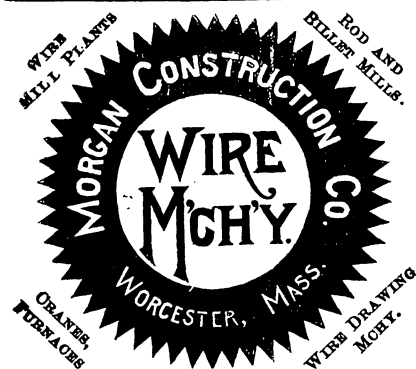
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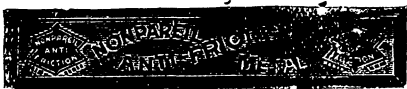
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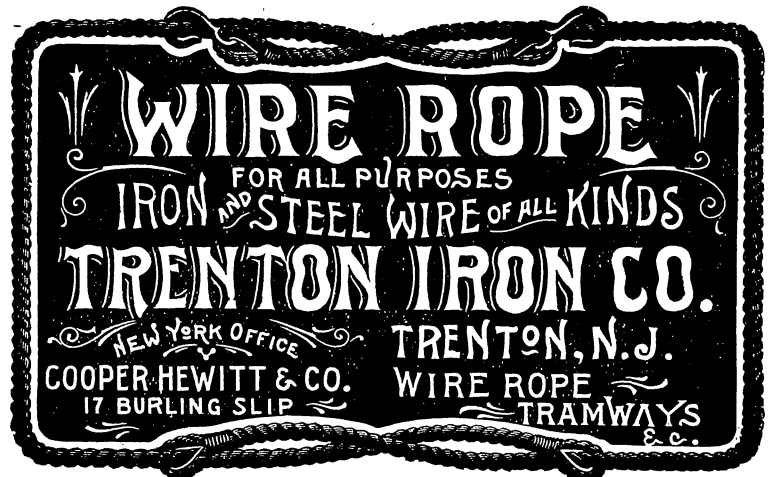
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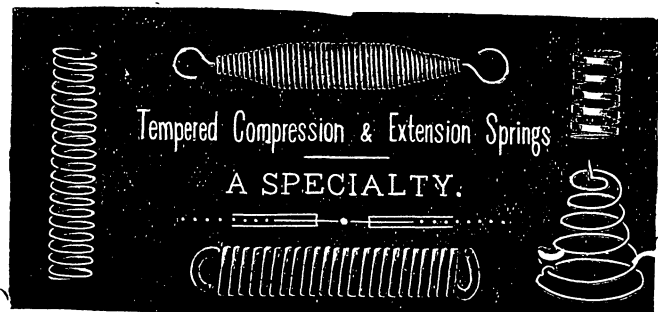


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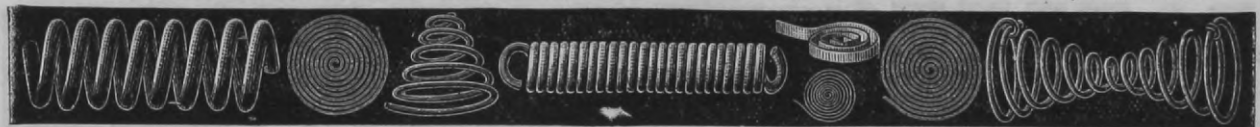
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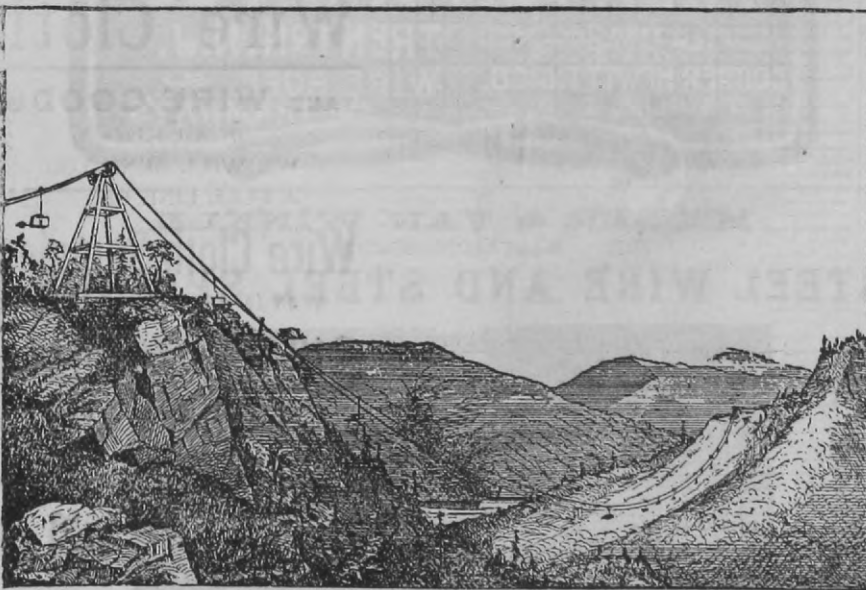
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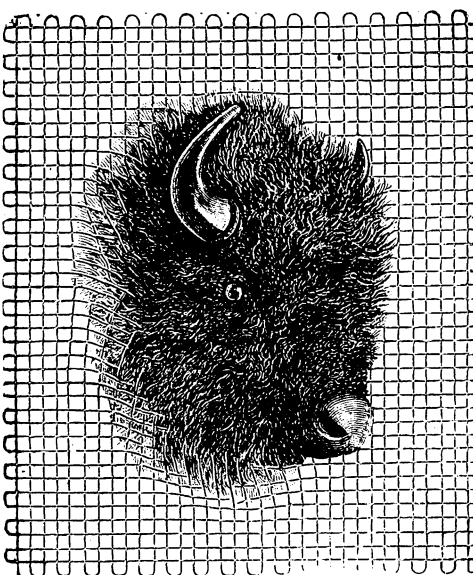
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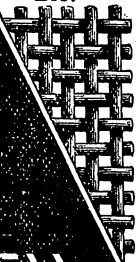


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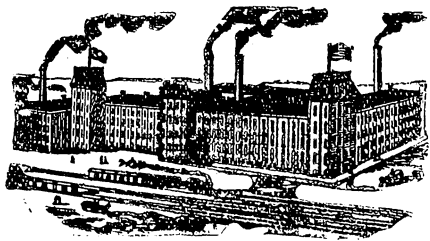
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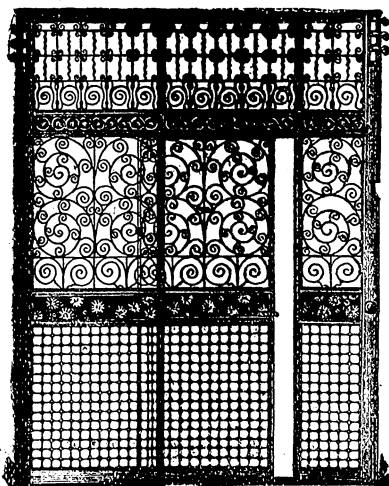
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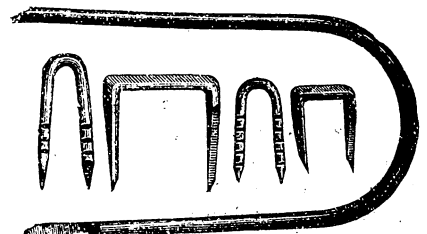
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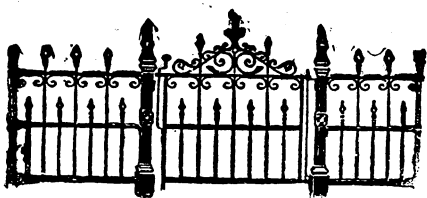
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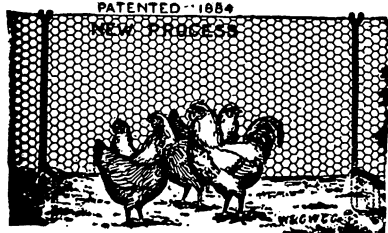
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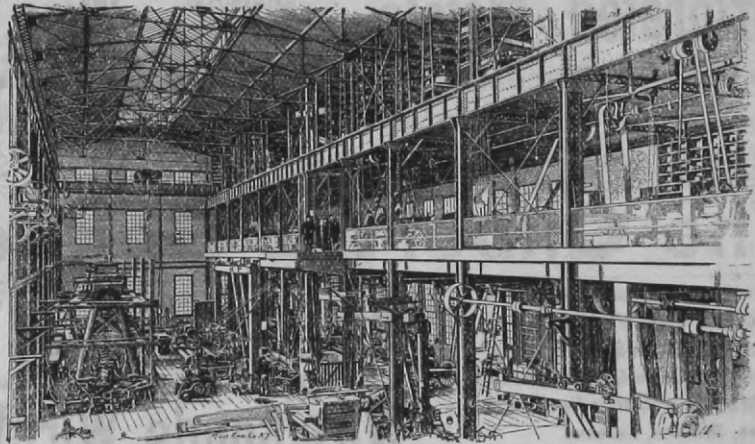
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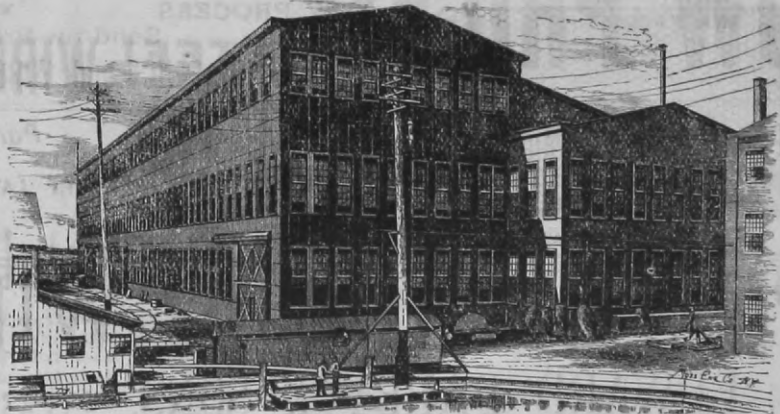
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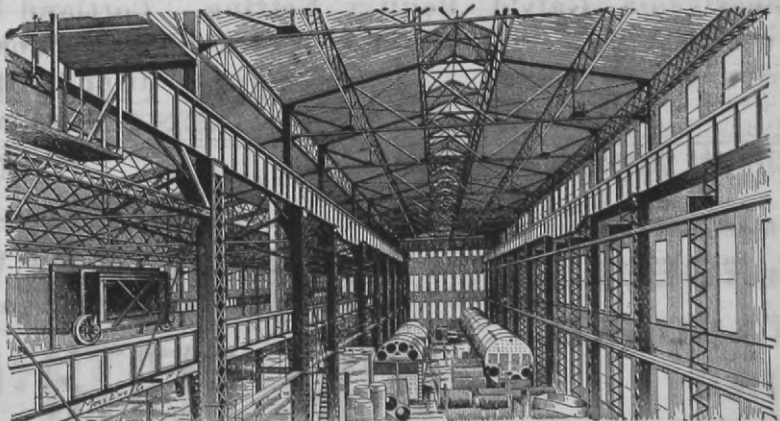
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The above illustration is taken direct from a photograph and shows the interior of a Machine Shop designed and built by us for The Dry Dock Engine Co., at Detroit, Mich. The central portion, or Erecting Room, is 40 feet wide, with a gallery three stories high on one side, this gallery being 27 feet in width. The upper floor of the gallery is used for storing patterns, while the second floor is used for light machine work, and the lower floor for heavy machine work—this lower floor being controlled by jib cranes, which also swing out into the central portion, thus delivering material from the wings by means of the jib cranes and the traveling crane to any portion of the Erecting Room. The whole frame-work of the building is of iron, with brick filling for the side walls.



The above illustration is an exterior view of the Boiler Shop and Blacksmith Shop designed and built by us for The Wm. Cramp & Sons Ship and Engine Building Co., at Philadelphia, Penn. The building is 114 feet in width and 316 feet in length, the frame work being of iron, covered with corrugated iron.



The above illustration is taken direct from a photograph and shows the interior of a Boiler Shop designed and built by us for The Wm. Cramp & Sons Ship and Engine Building Co., at Philadelphia, Penn. The Boiler Shop portion of the building is 55 feet in width and 370 feet in length. The adjacent Blacksmith Shop (shown on the left) is 59 feet in width and 350 feet in length. The Boiler Shop is 50 feet in height, with 50 ton traveling crane. The building is covered on the sides and roof with corrugated iron.

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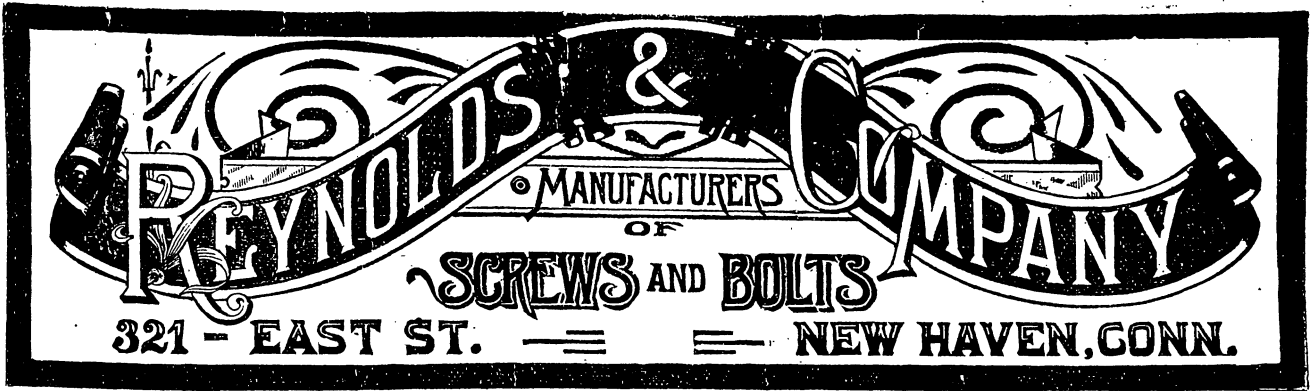
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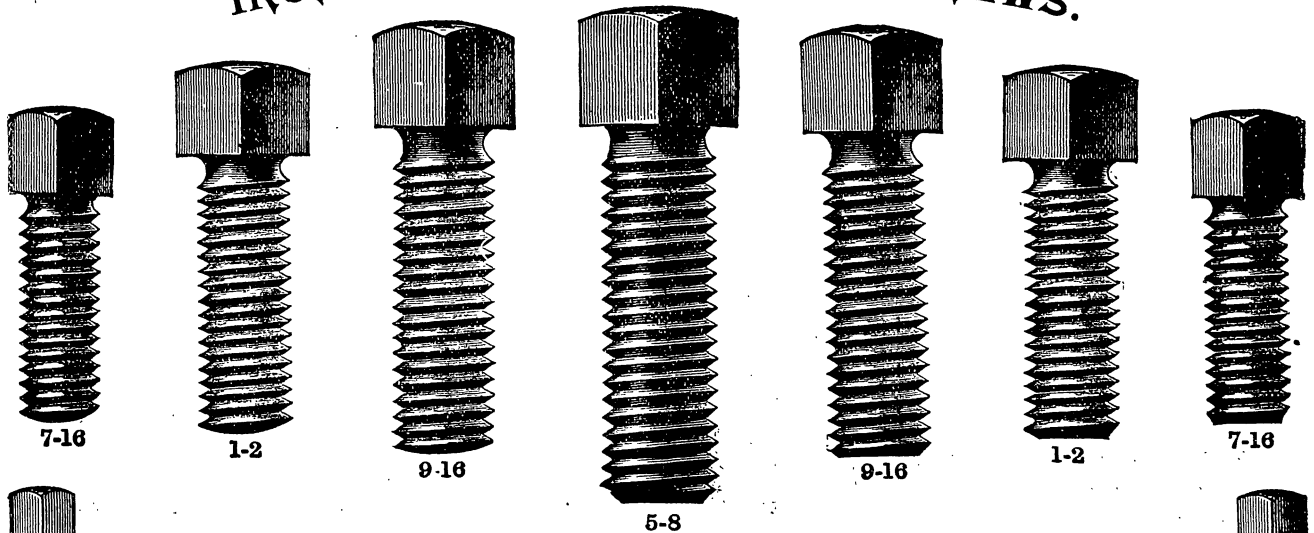
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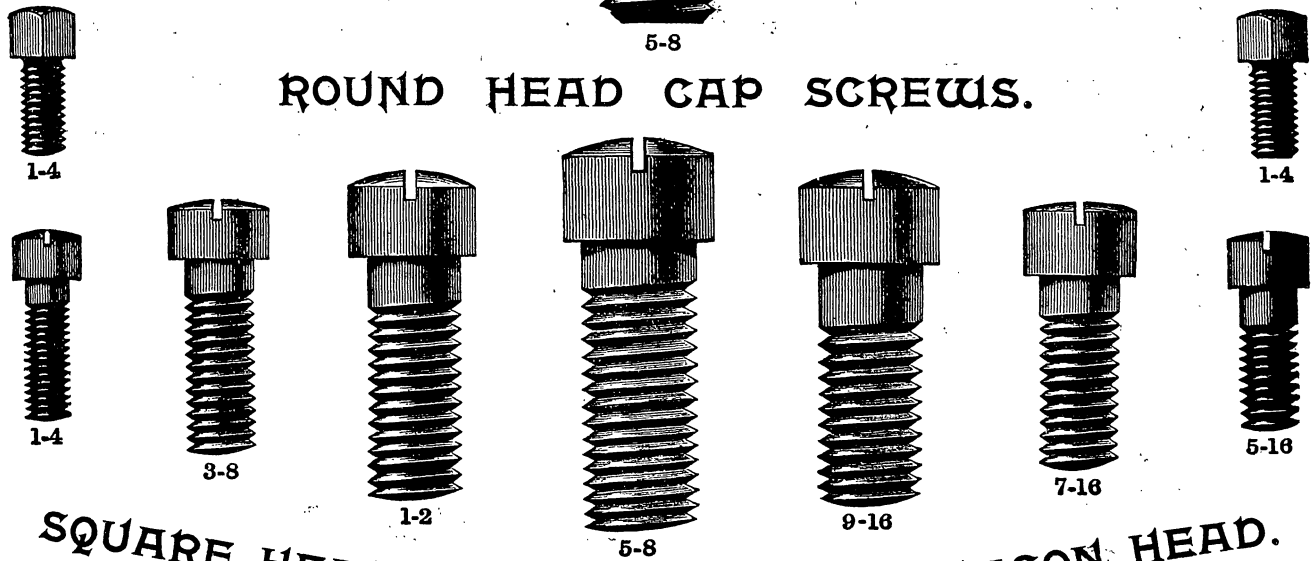




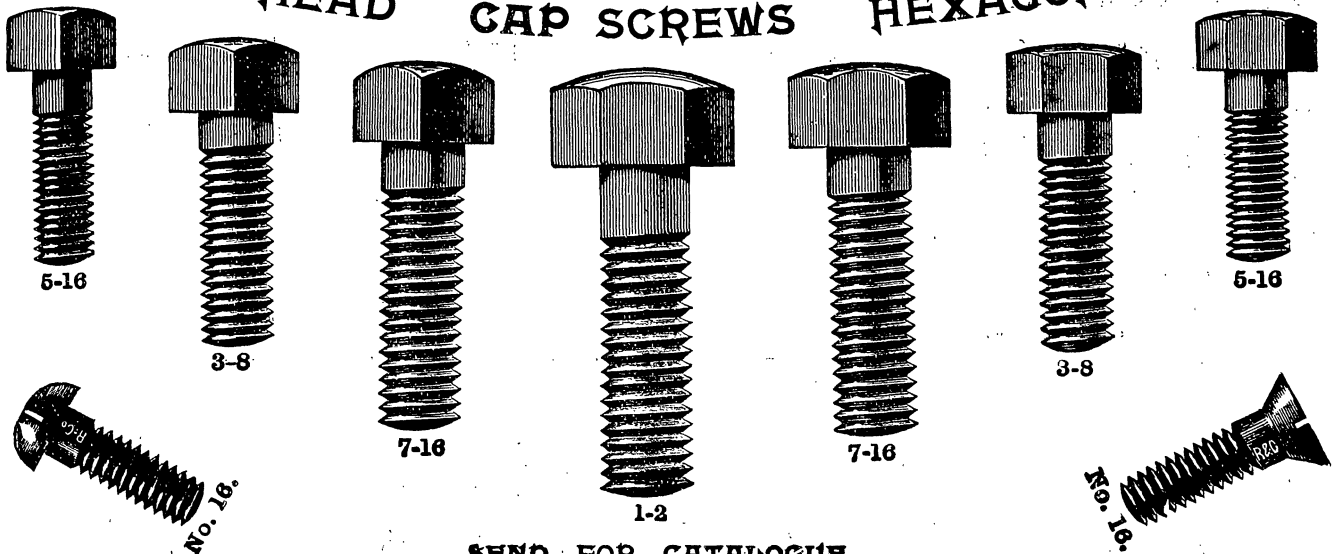
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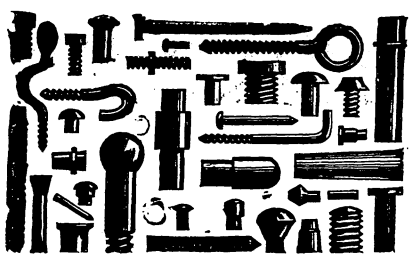
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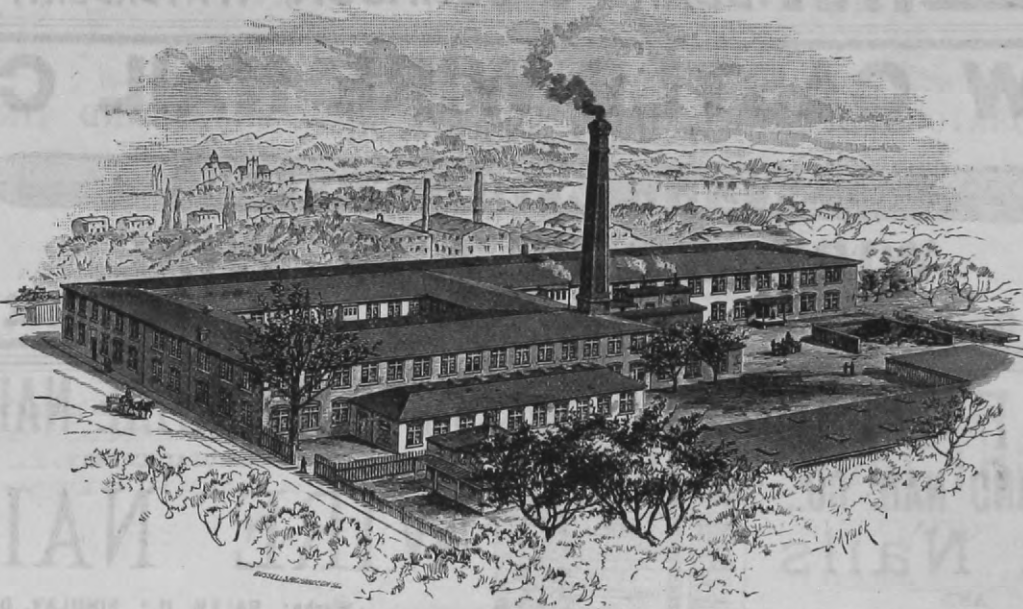
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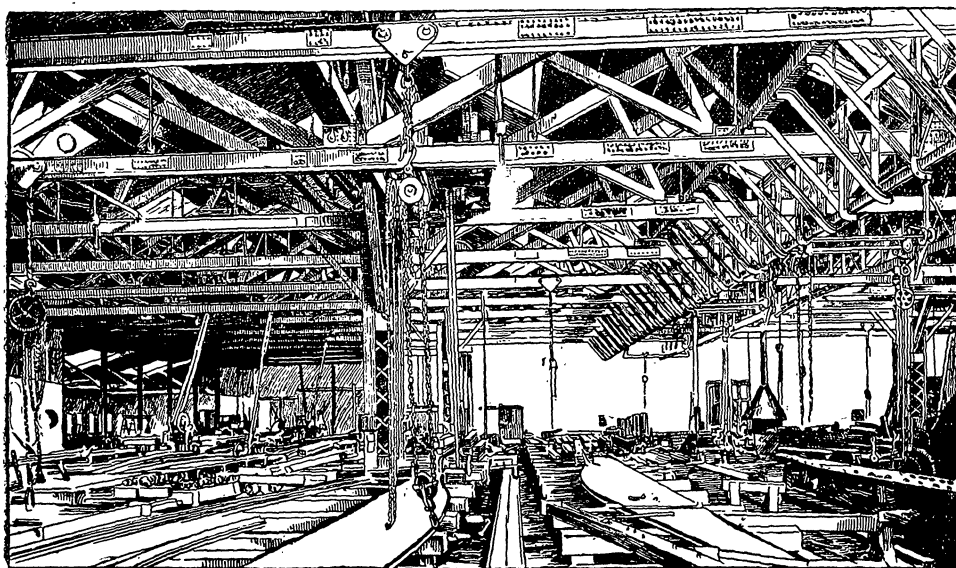
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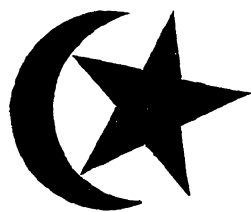
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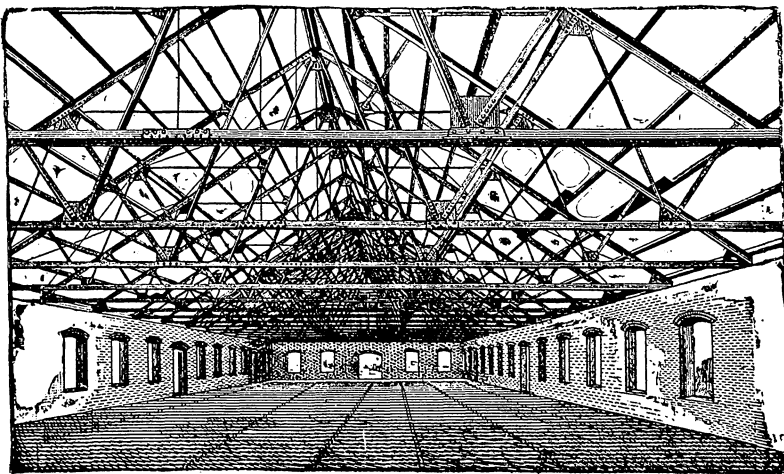
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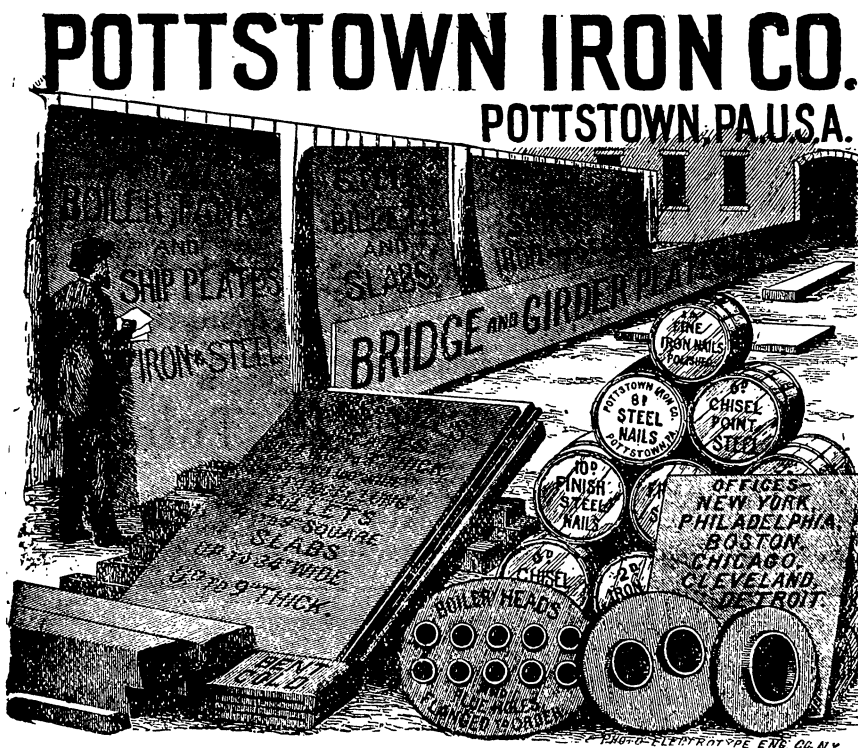
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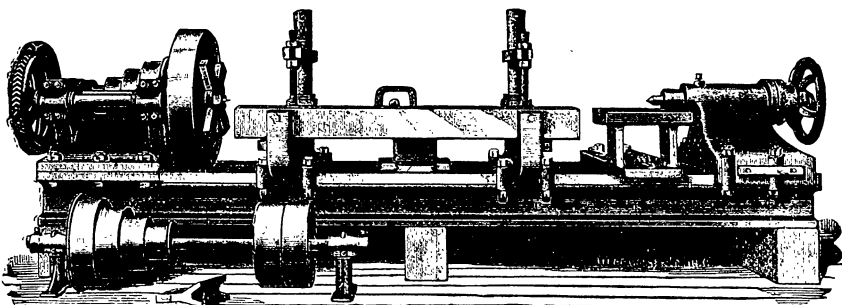
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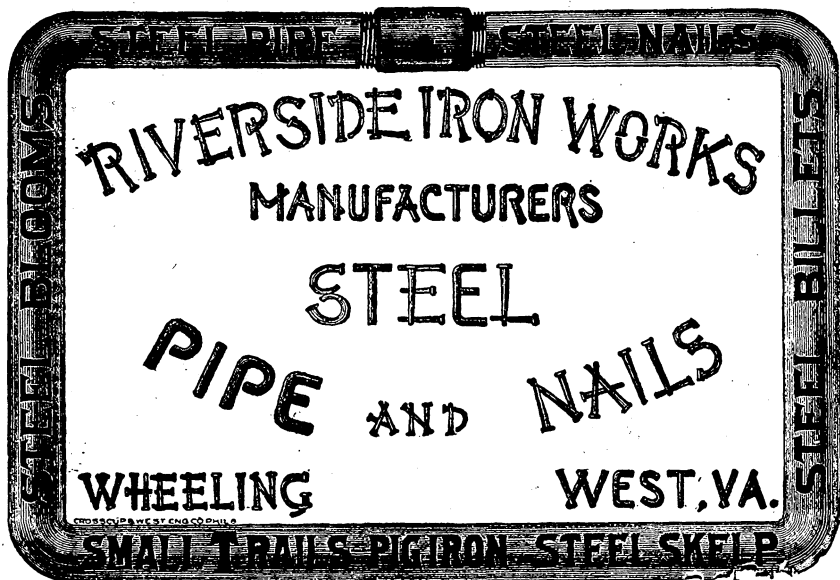
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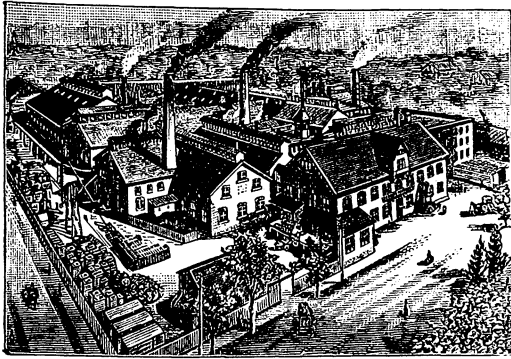
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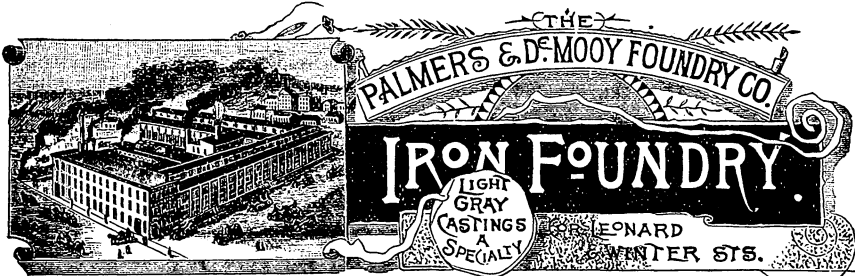
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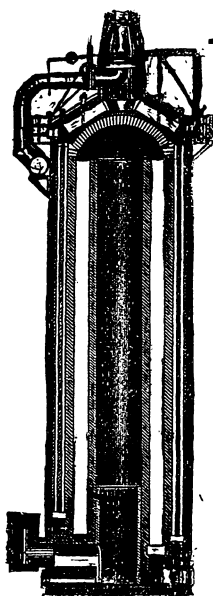
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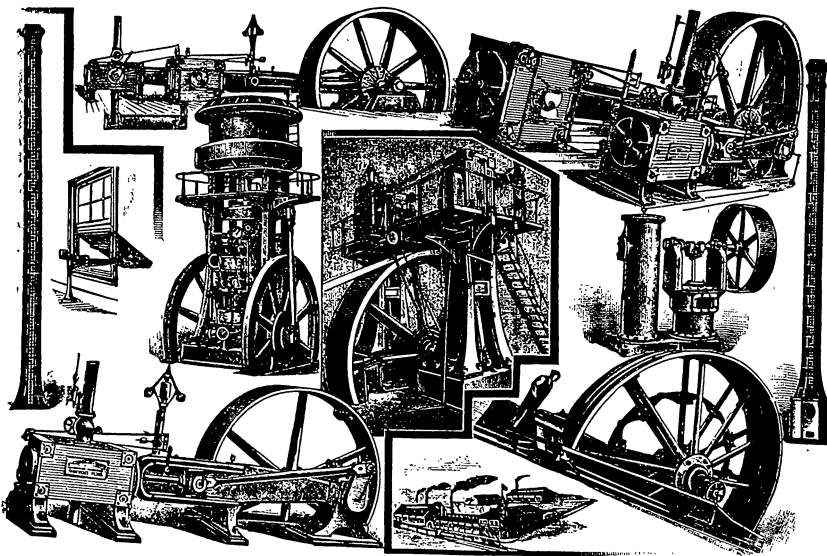
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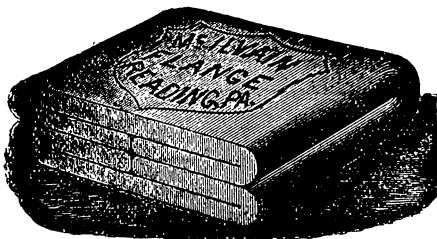
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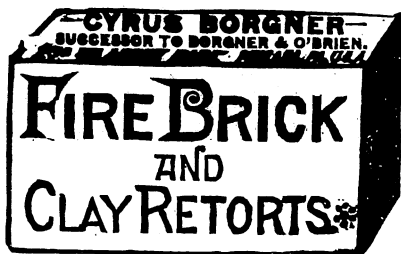
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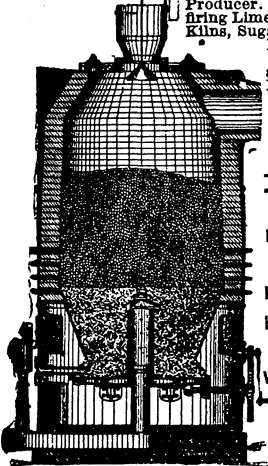
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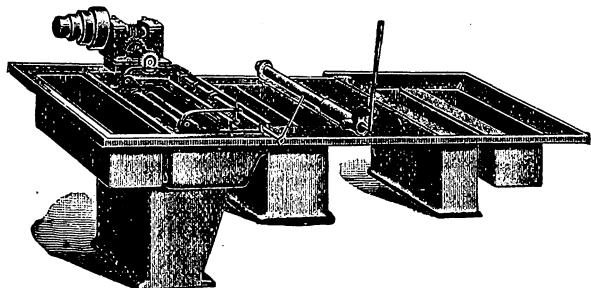
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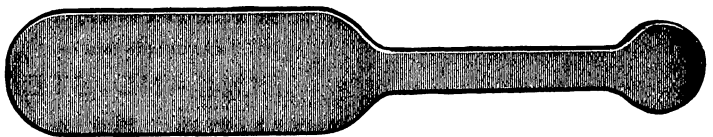
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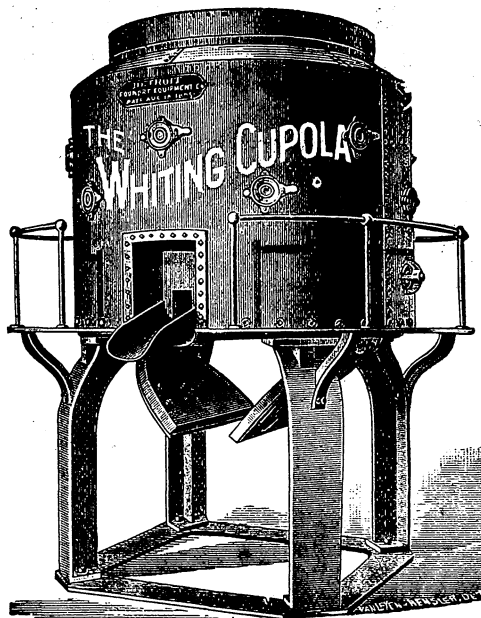
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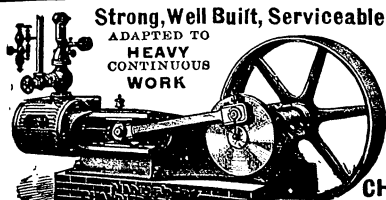
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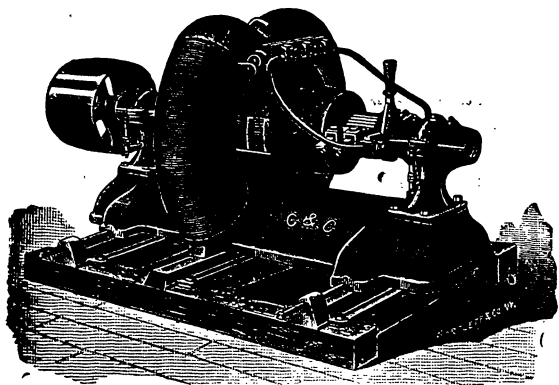
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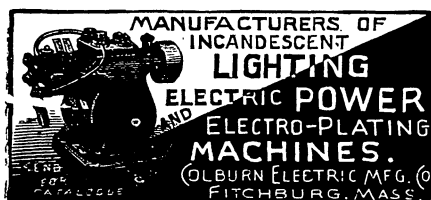
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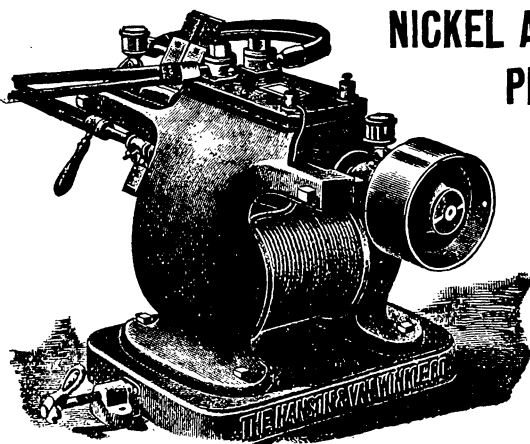
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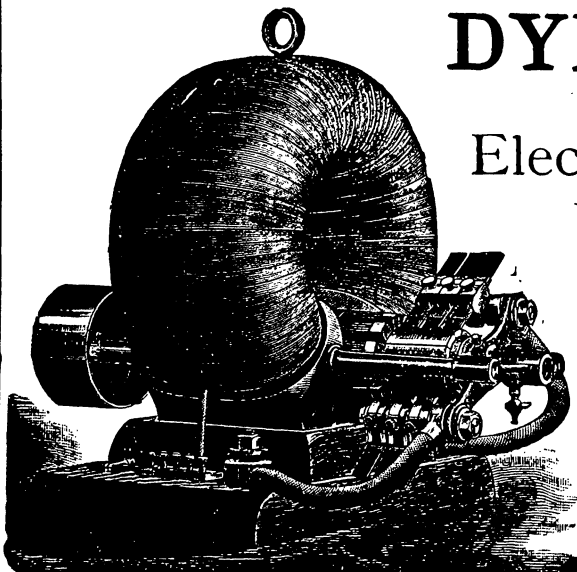
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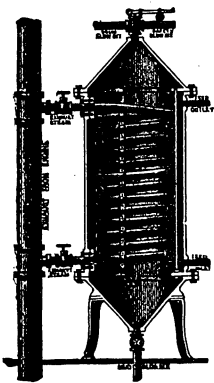
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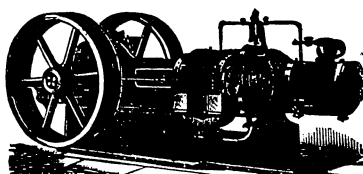
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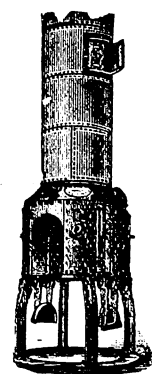
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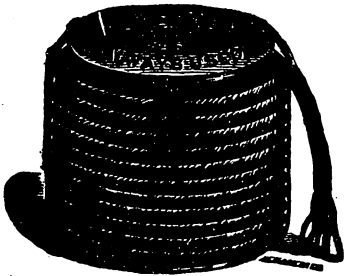
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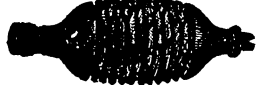
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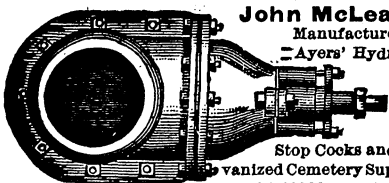
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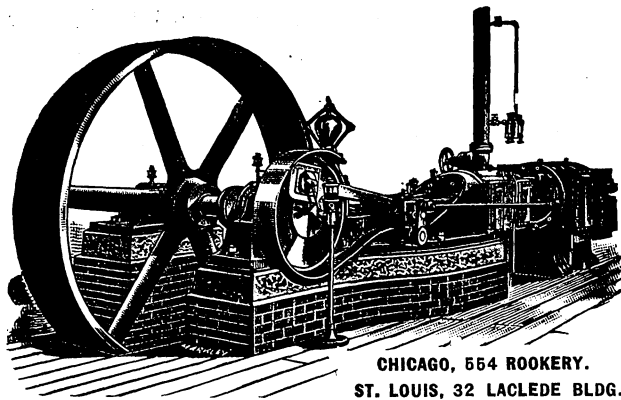
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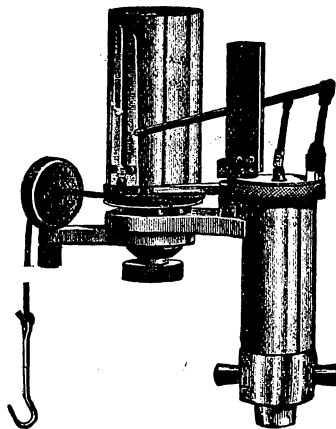
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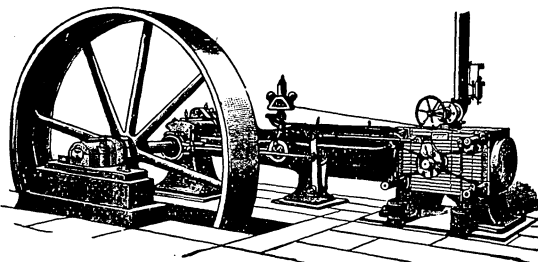
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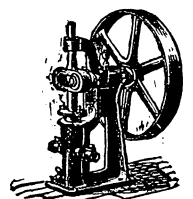
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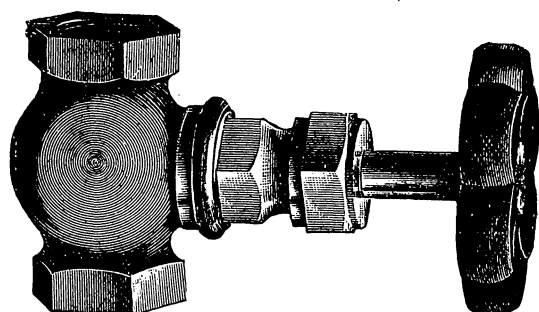
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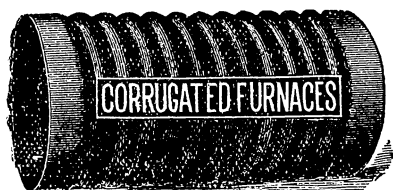
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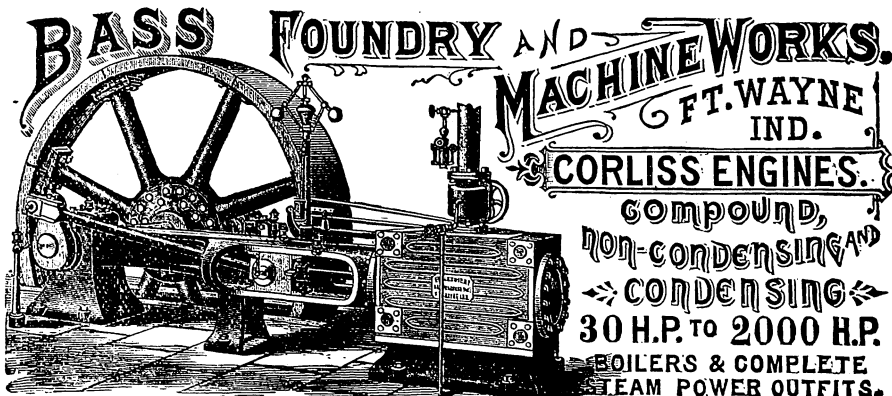
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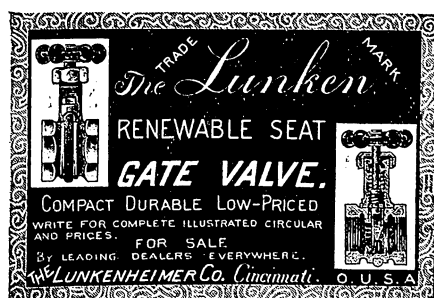
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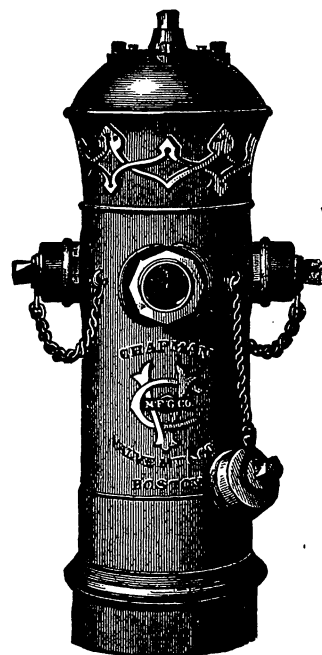
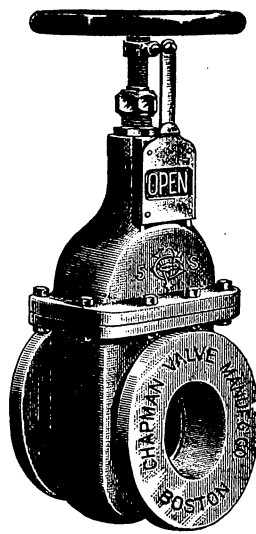
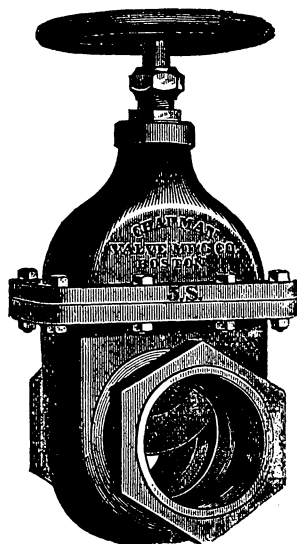
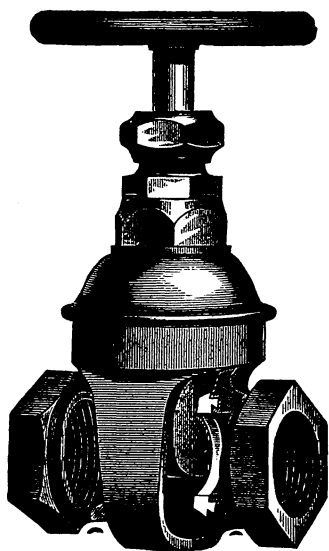
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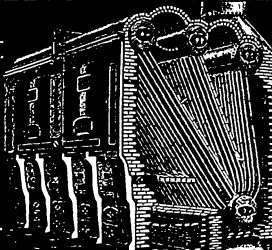
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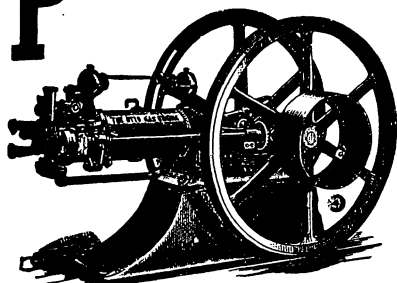
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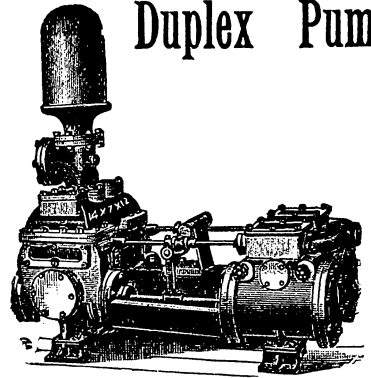
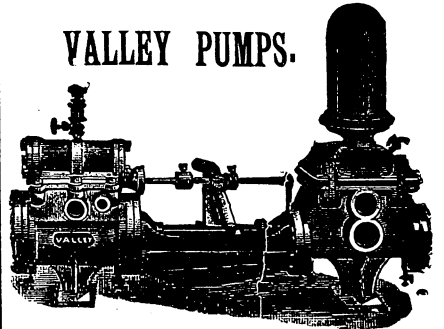
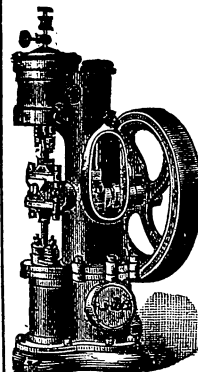
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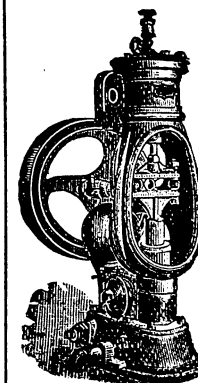
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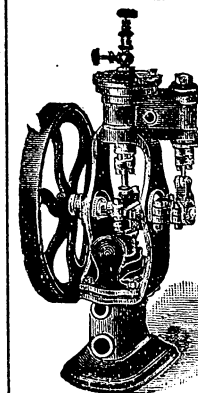
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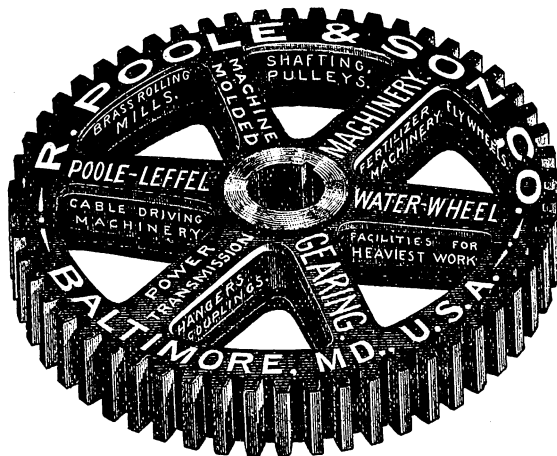
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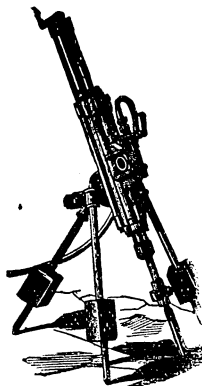
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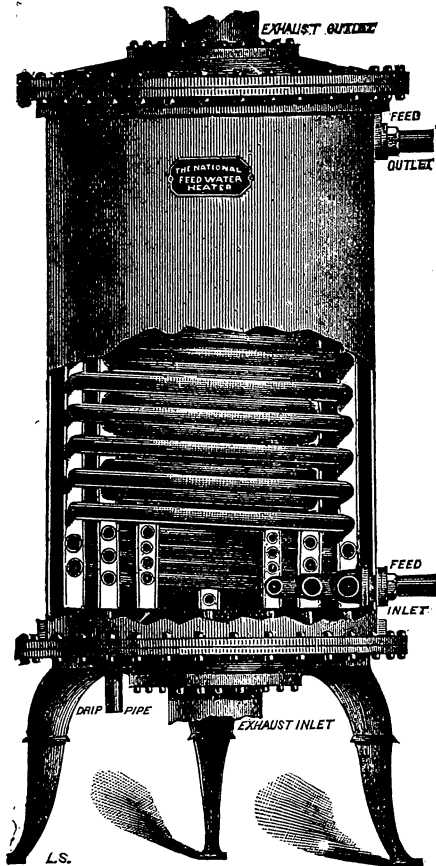
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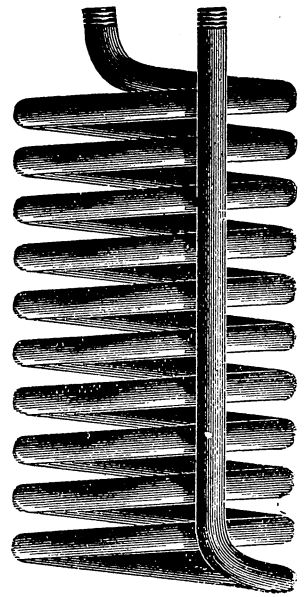
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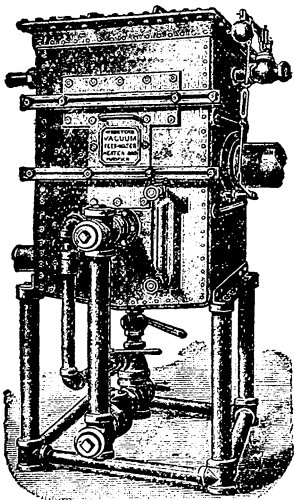
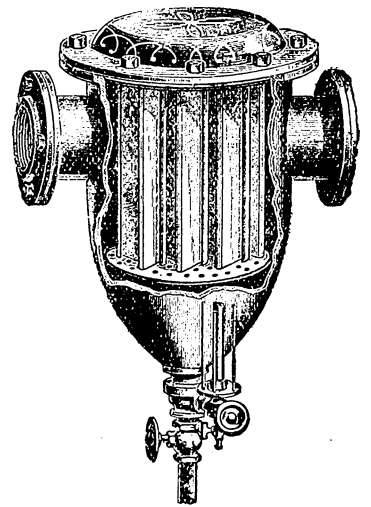
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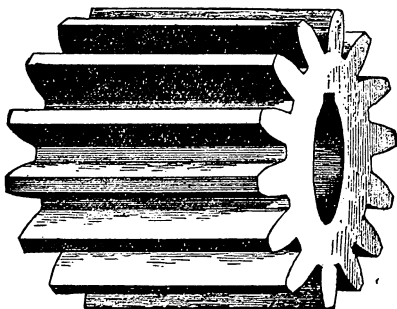
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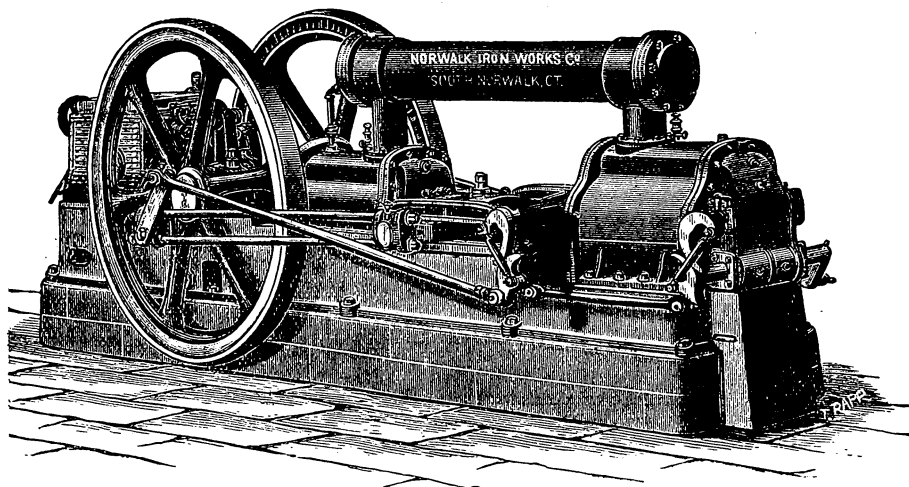
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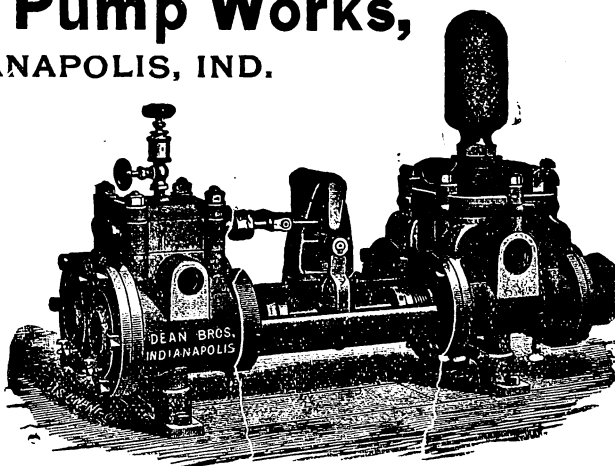
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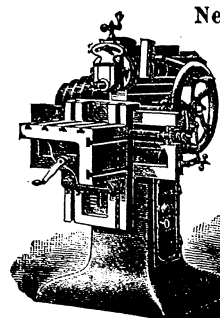
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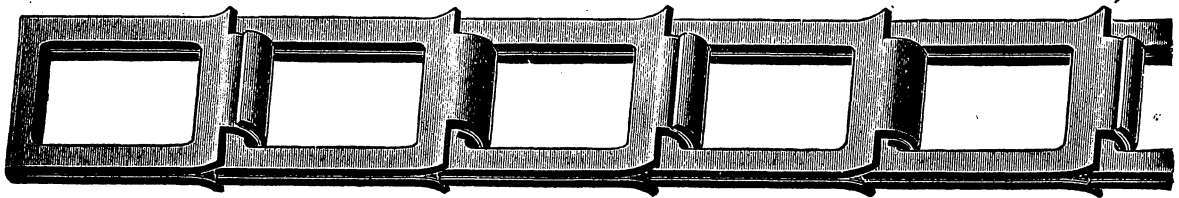
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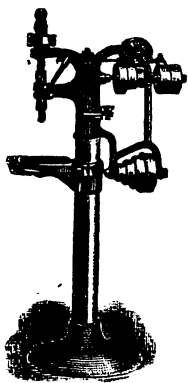
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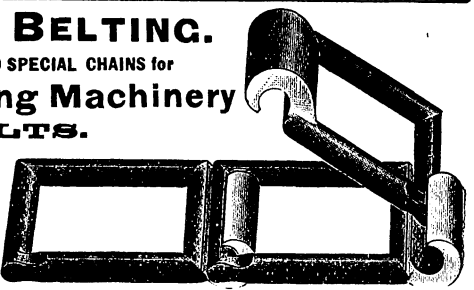
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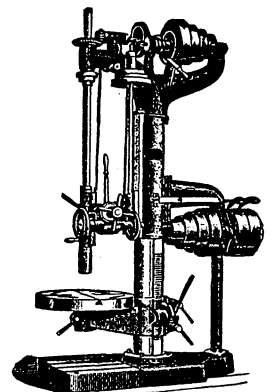
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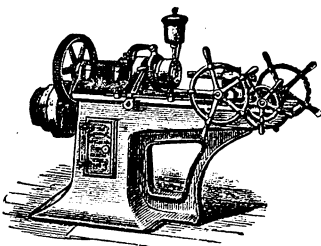
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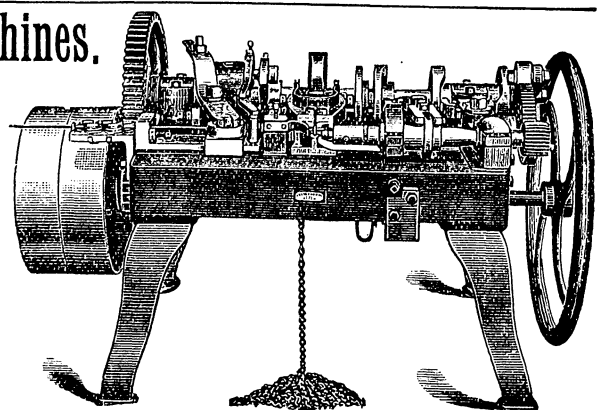
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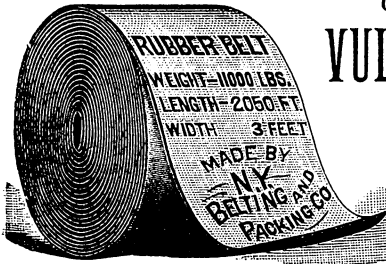
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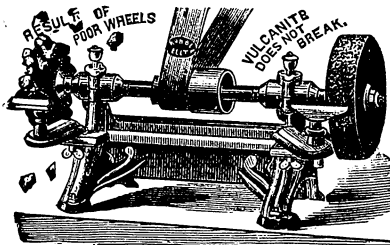


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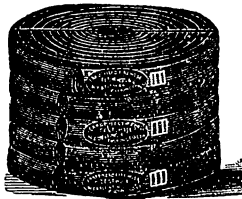
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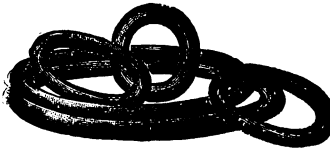
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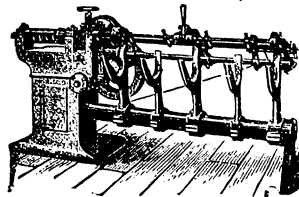
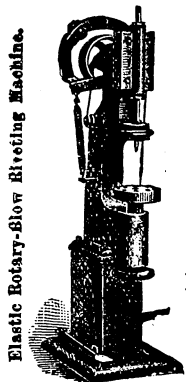
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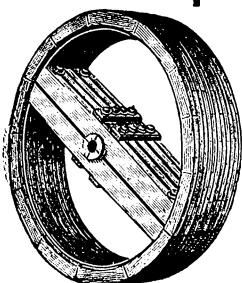
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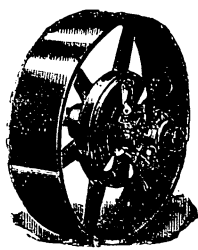
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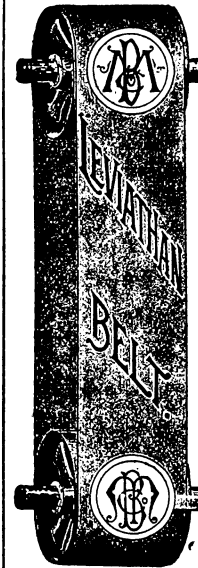
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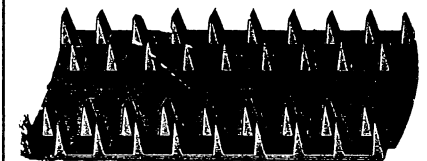
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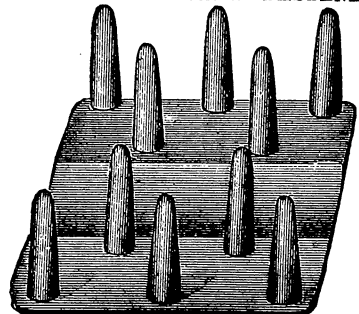


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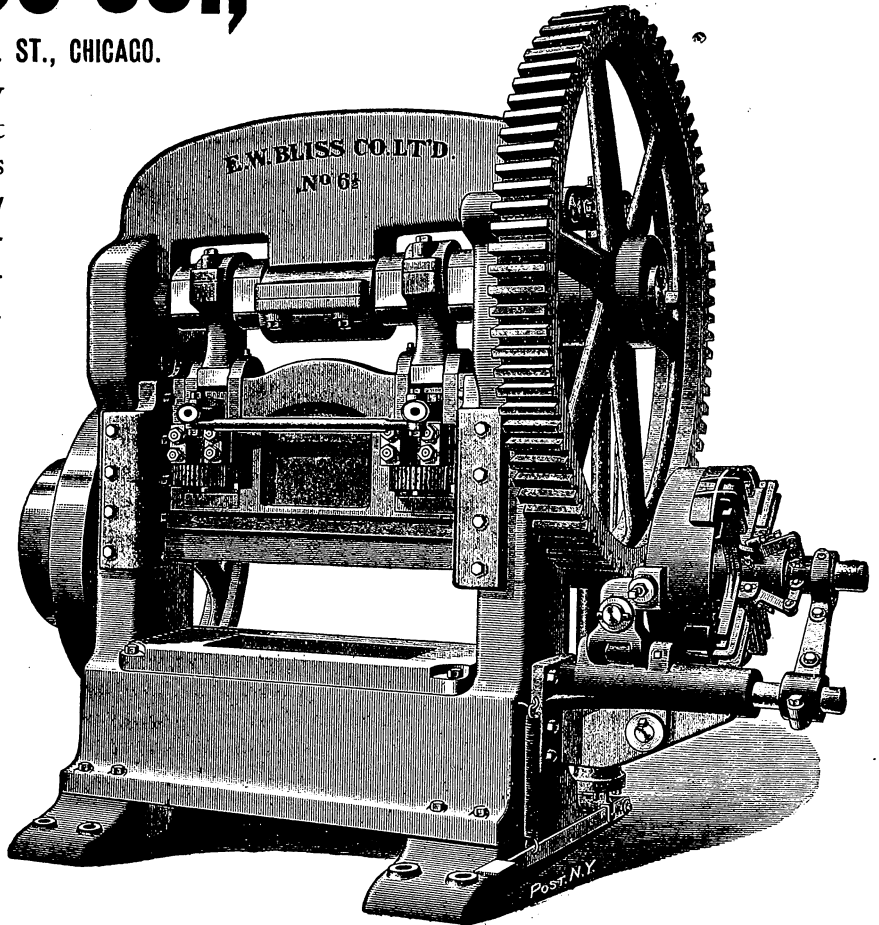
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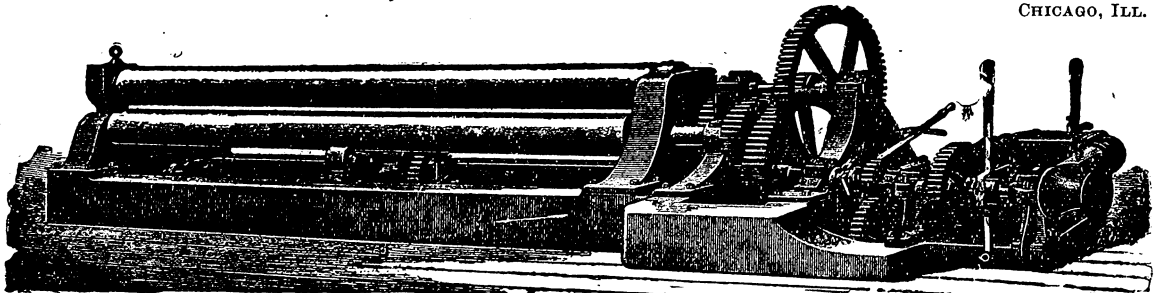
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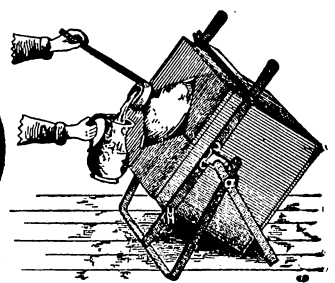
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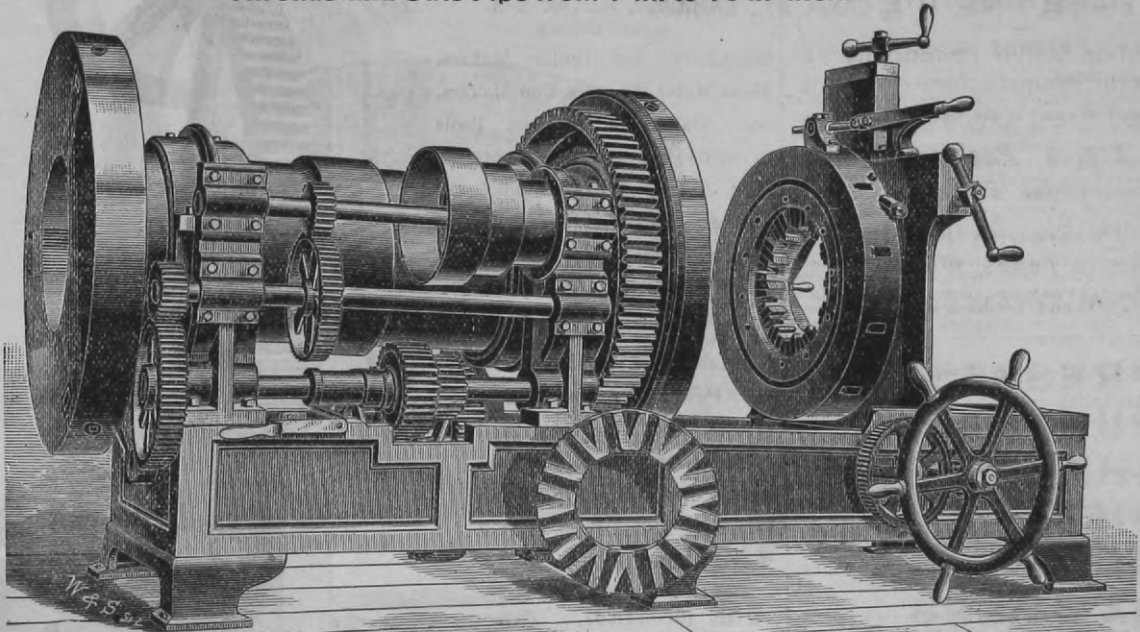
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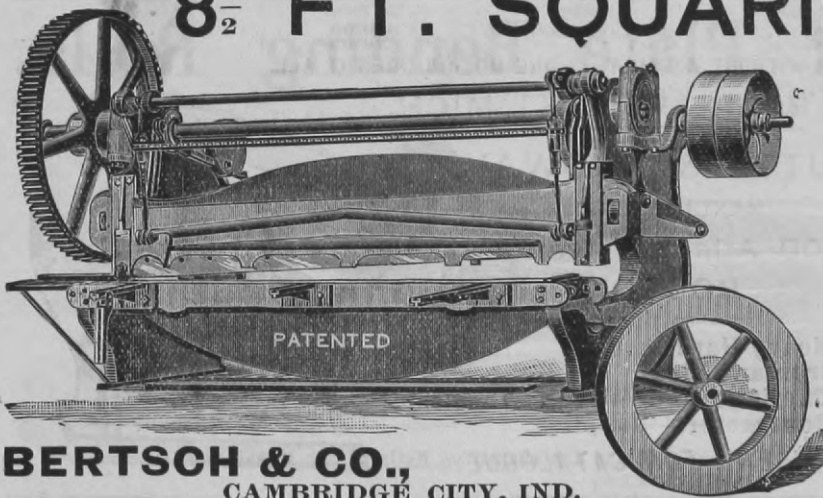
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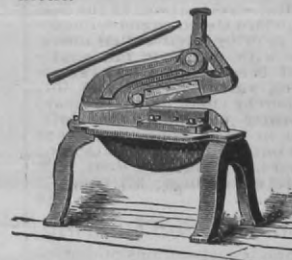
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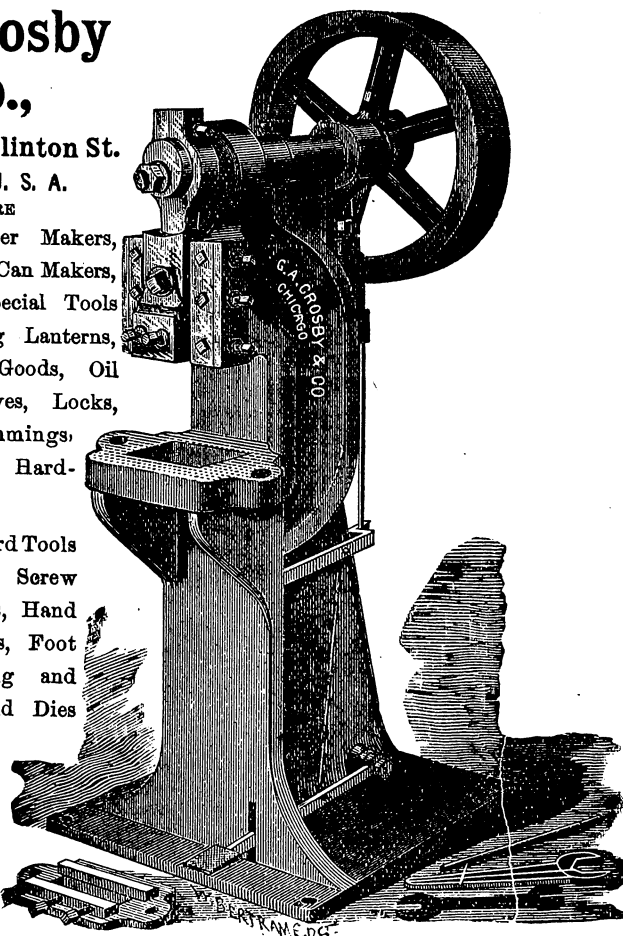
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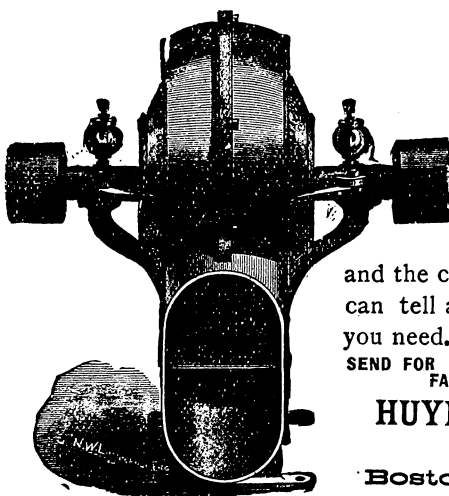
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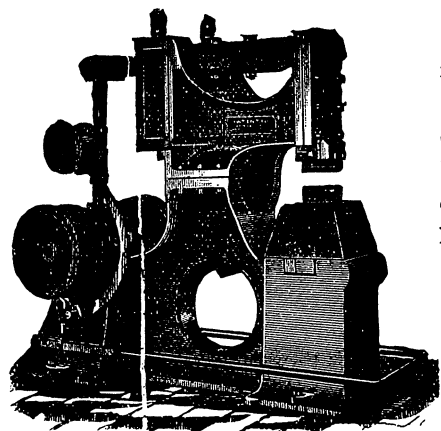
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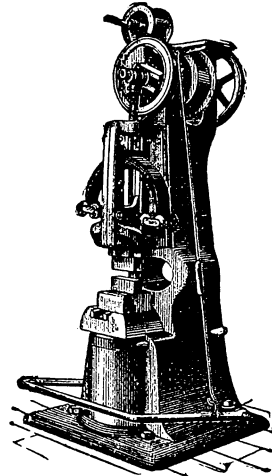
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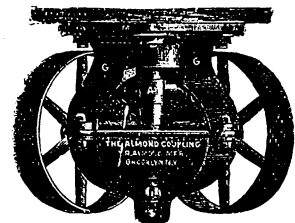
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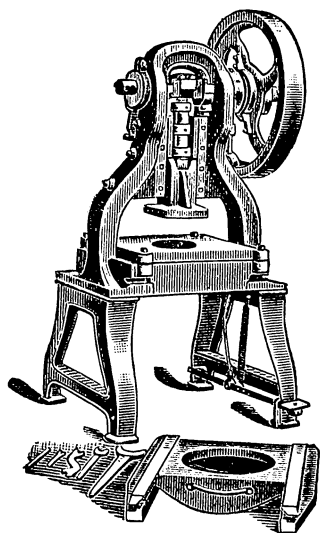
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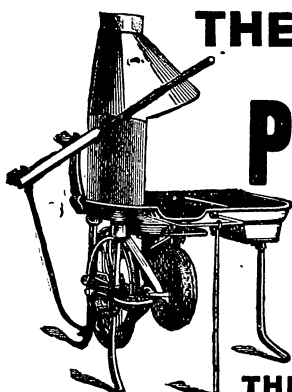
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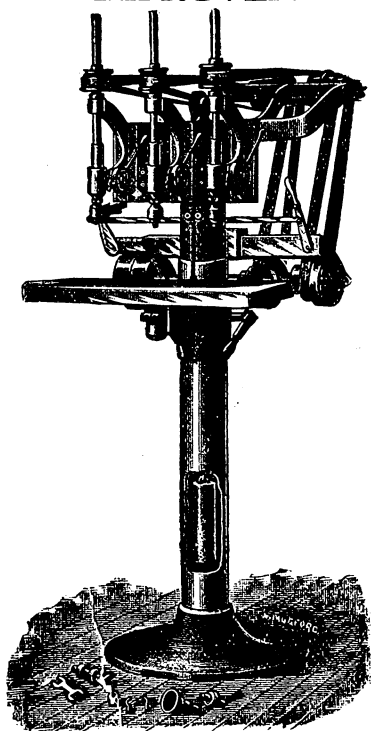
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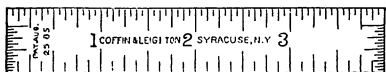
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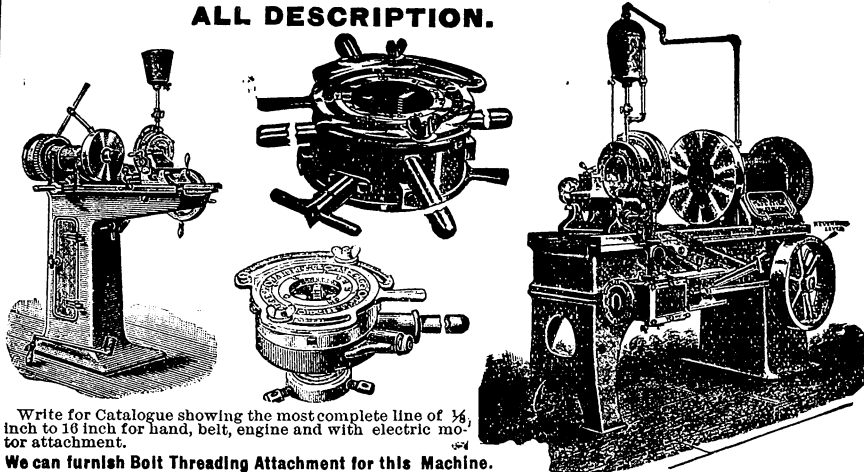
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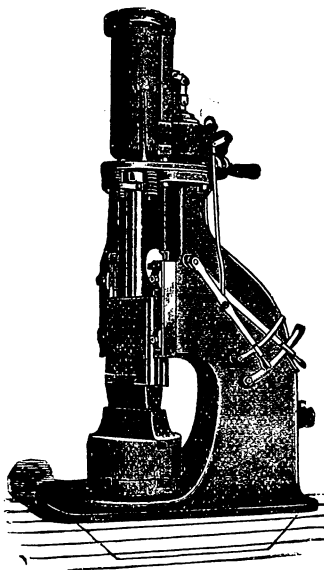
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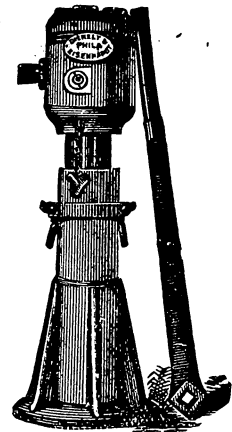
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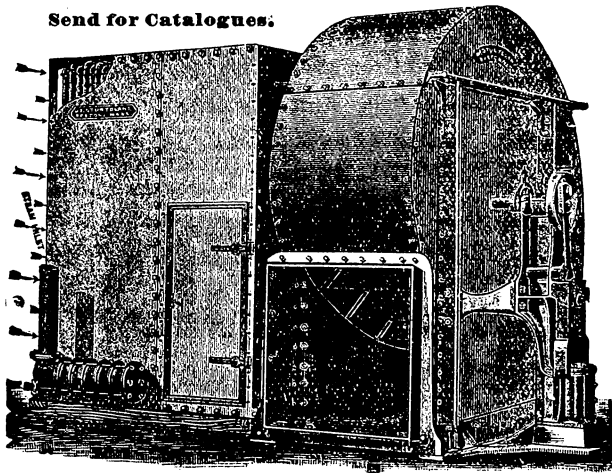
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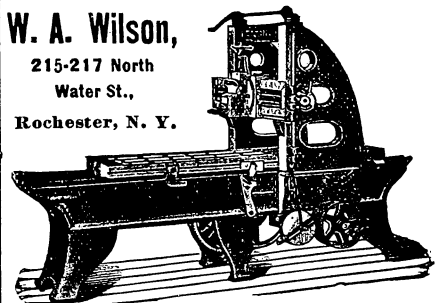
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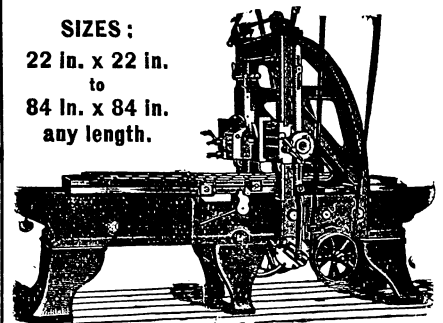
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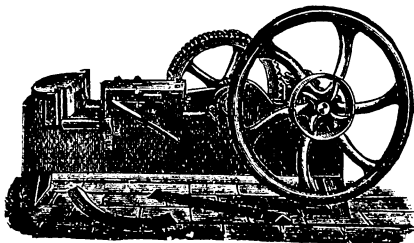
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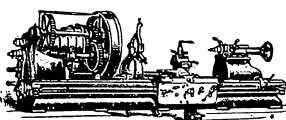


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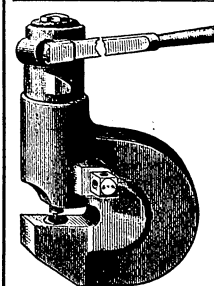
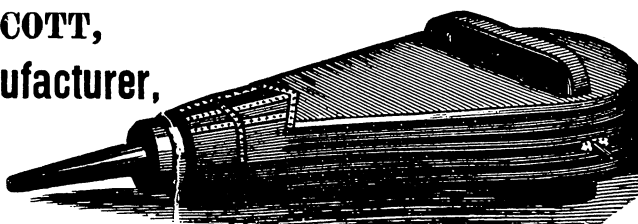
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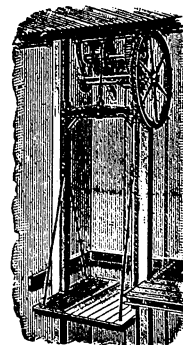
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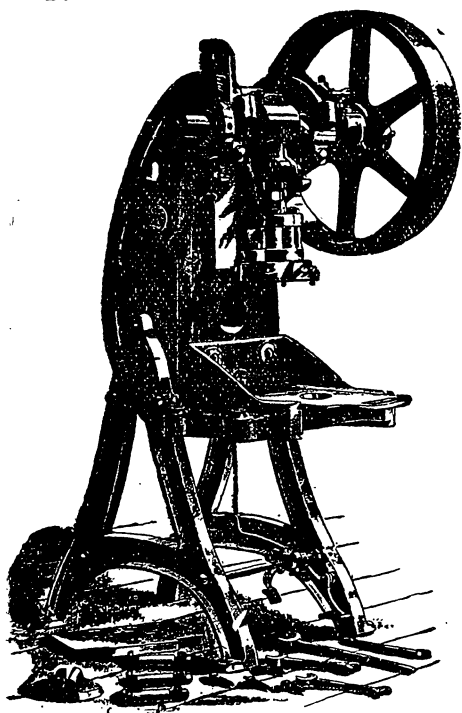
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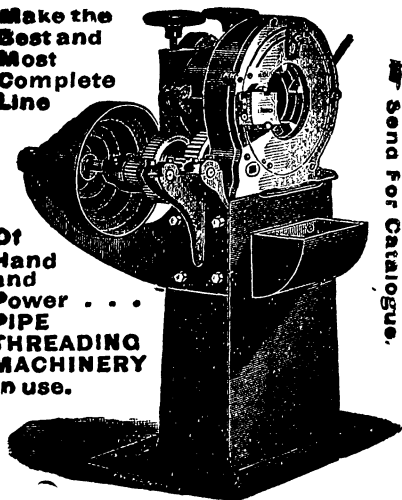


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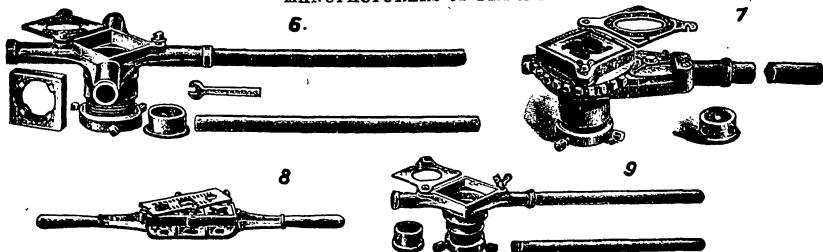
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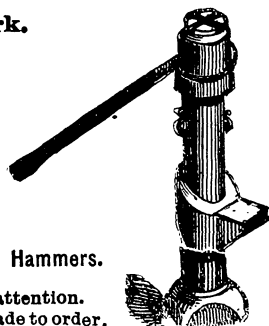
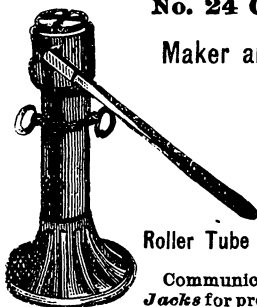
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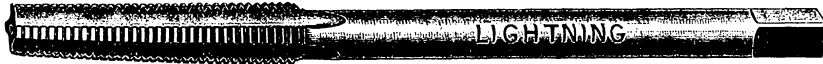
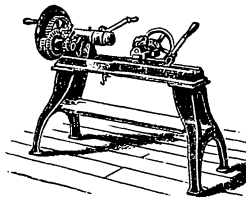
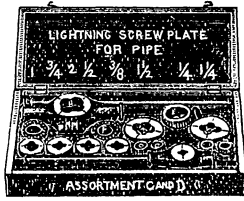
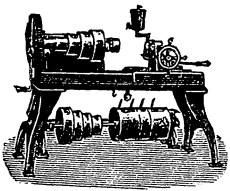
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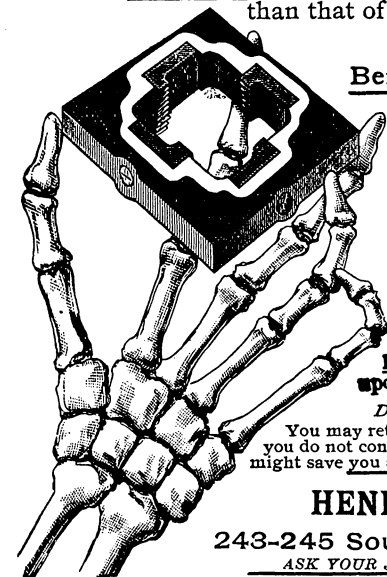
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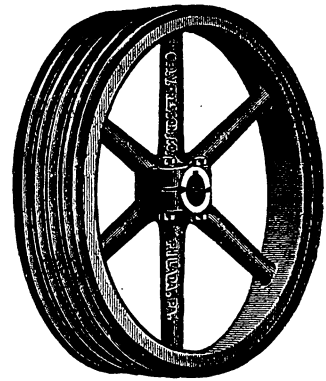
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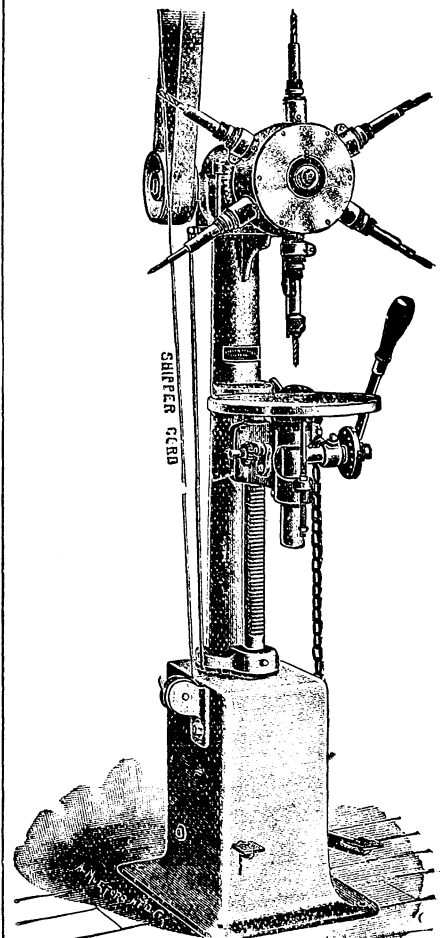


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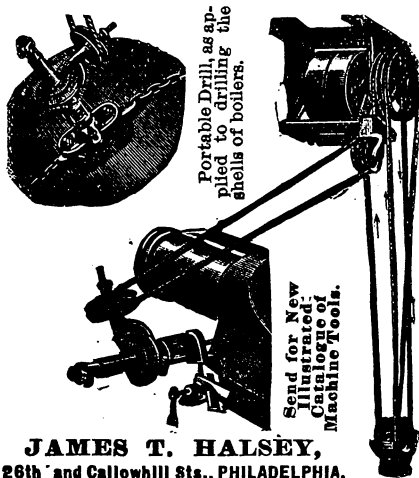
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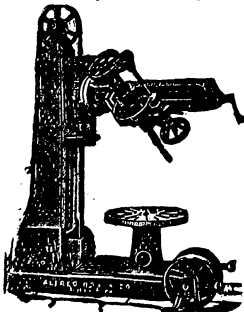
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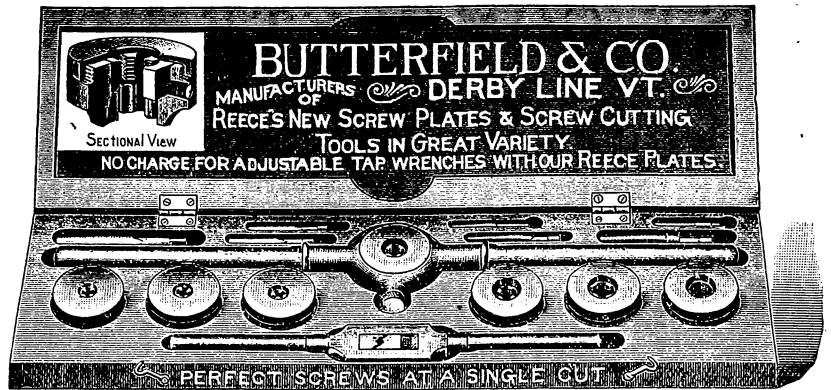
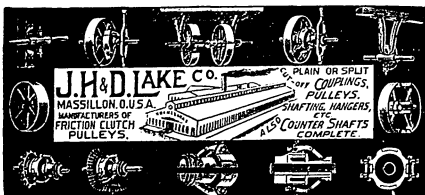
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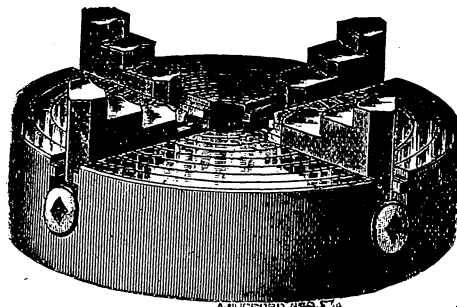
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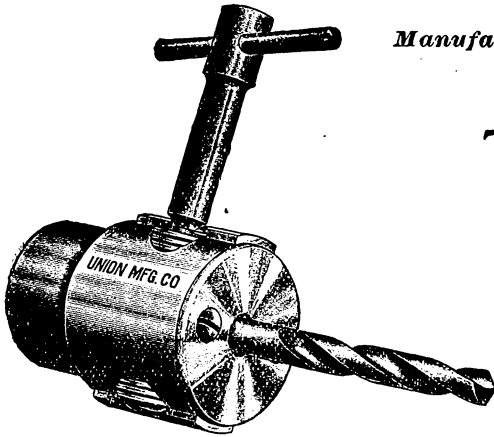
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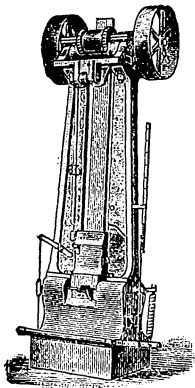
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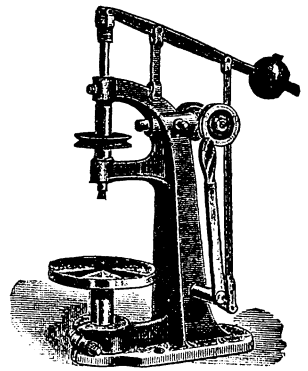
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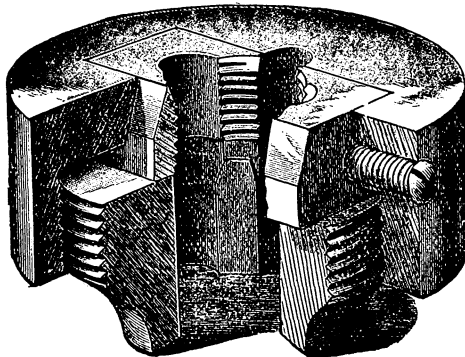
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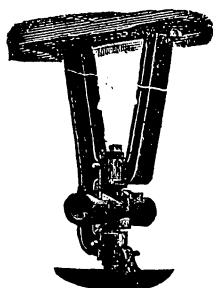
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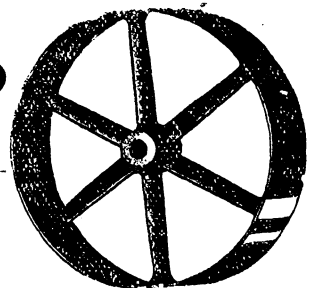
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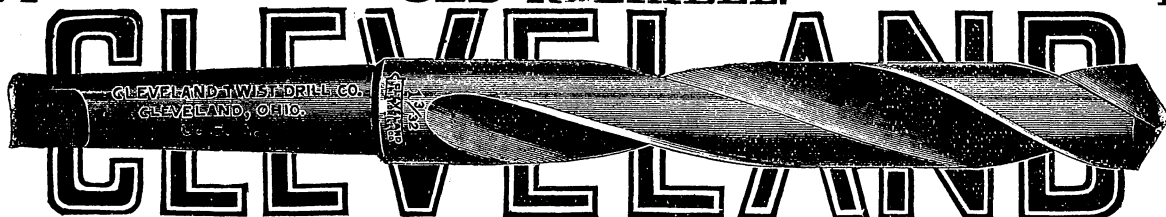
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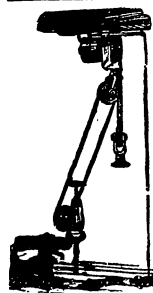
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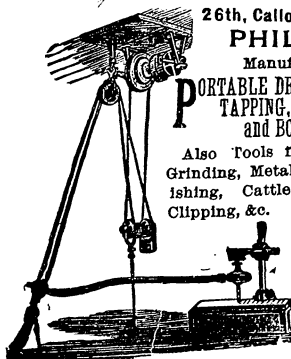
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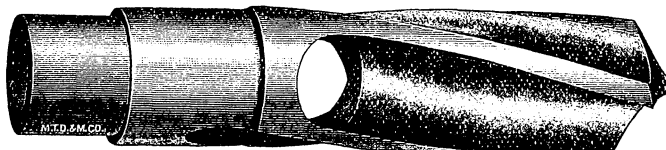
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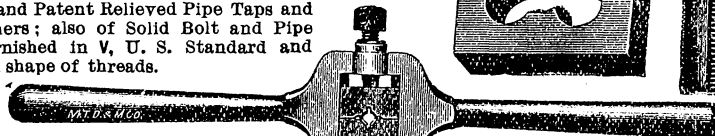
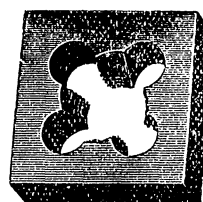
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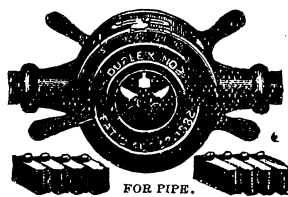


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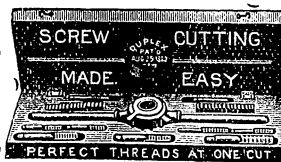
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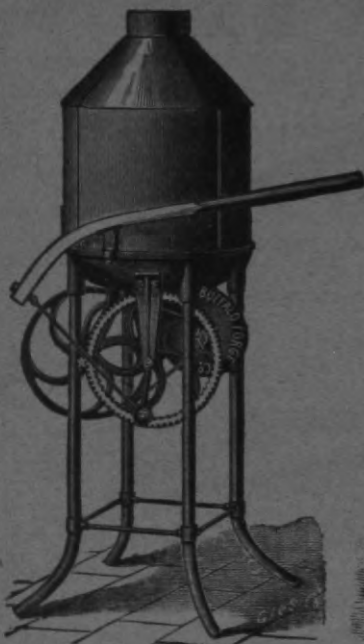
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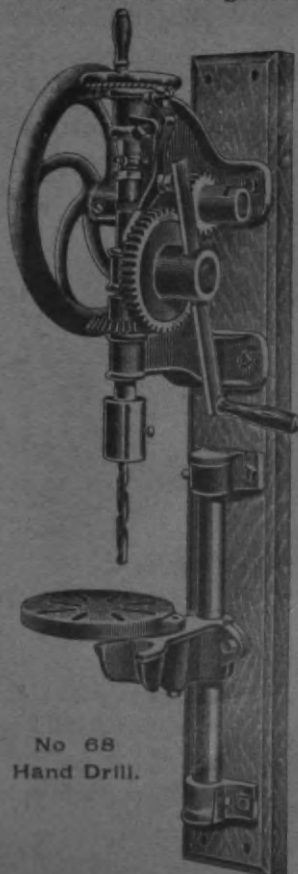
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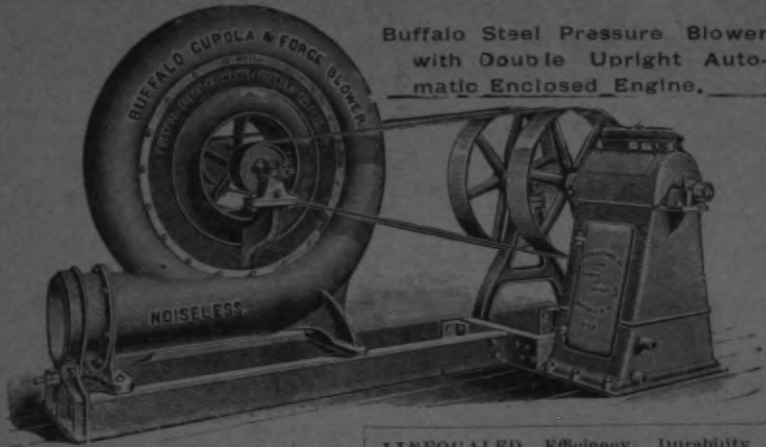
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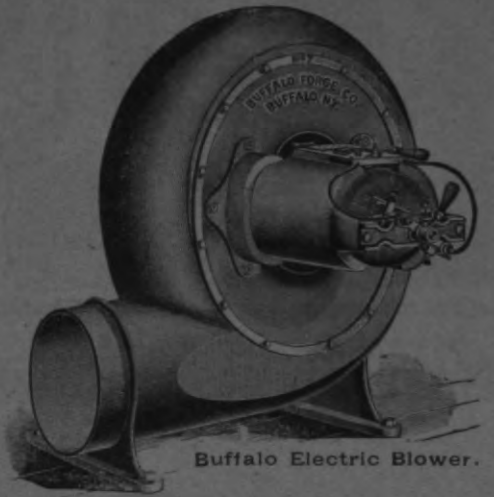
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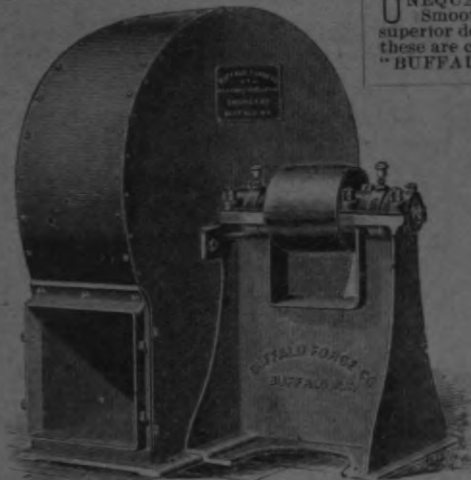


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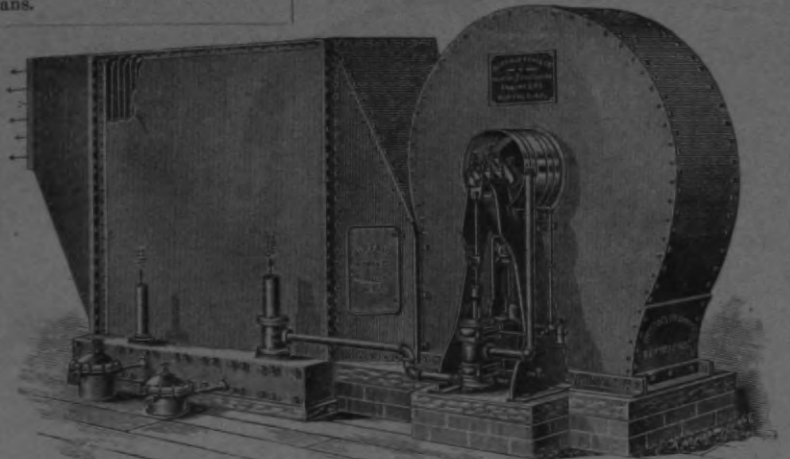


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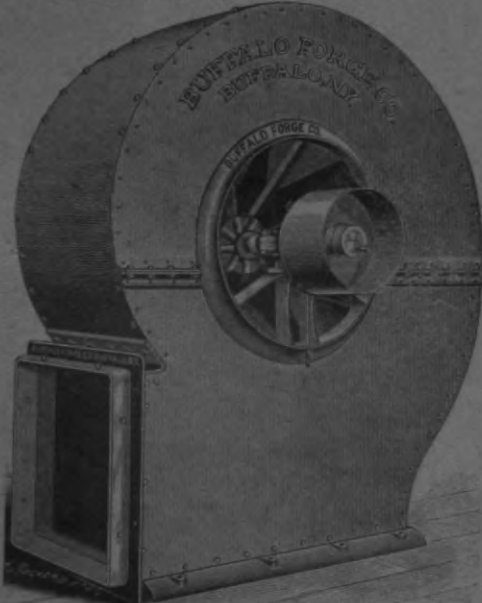
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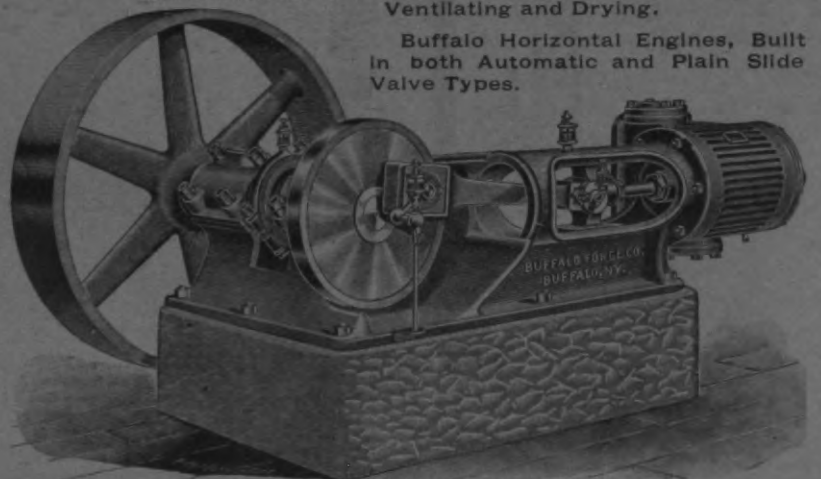
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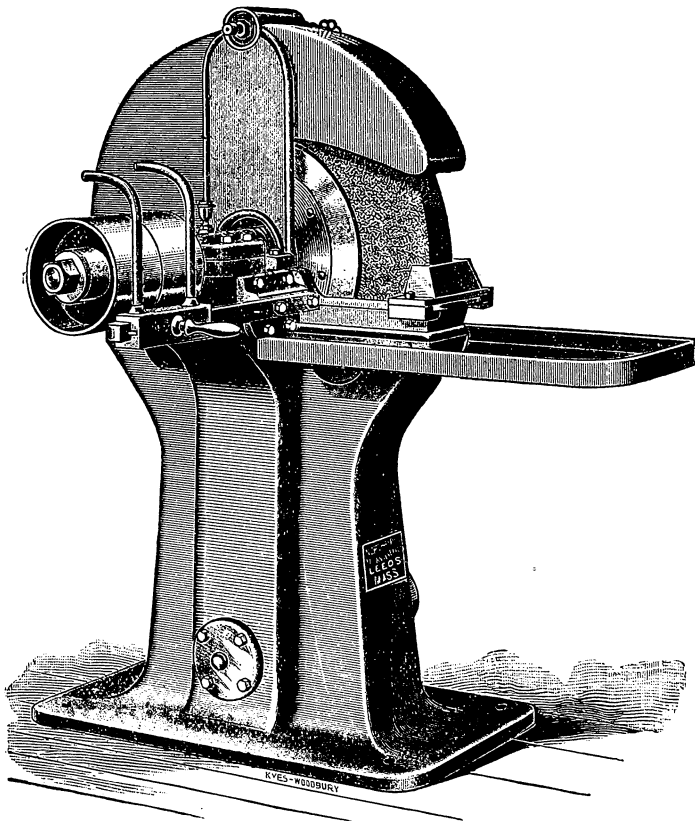
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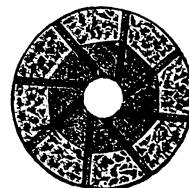
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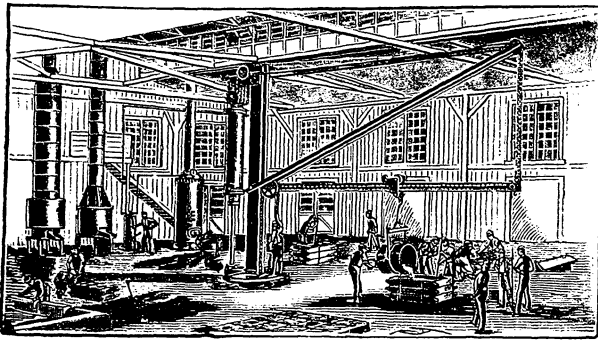
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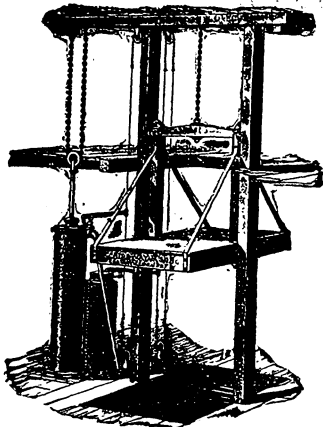
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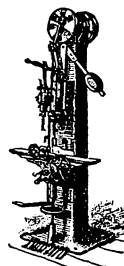
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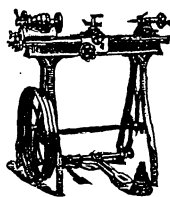
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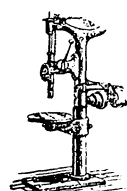
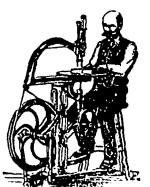
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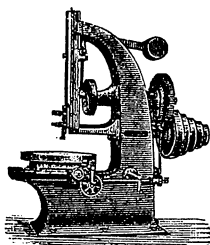
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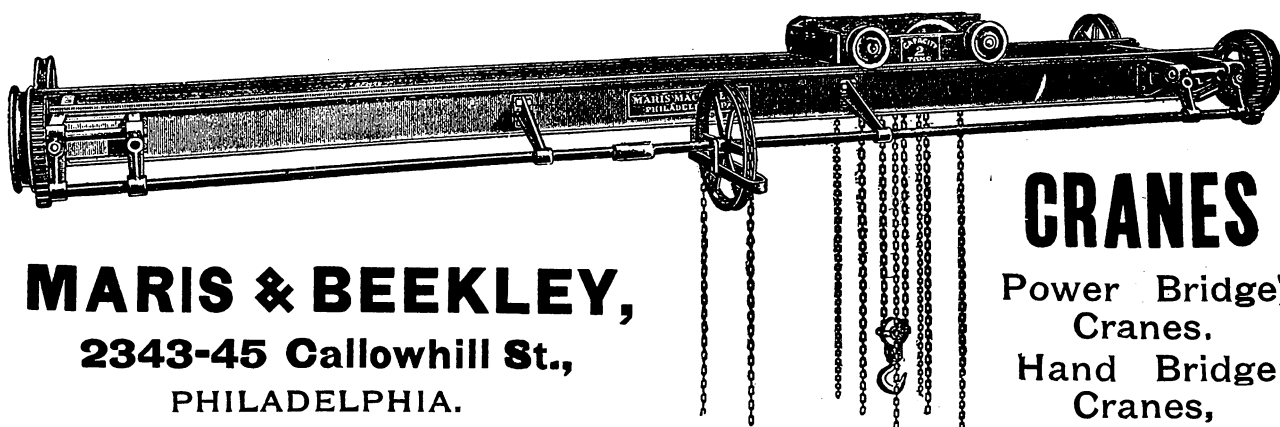
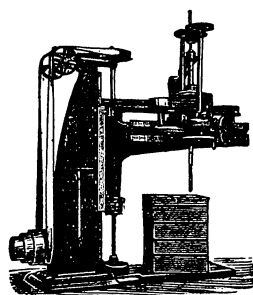


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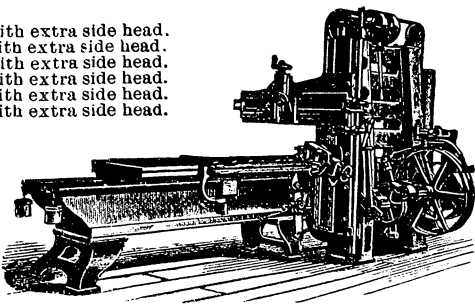
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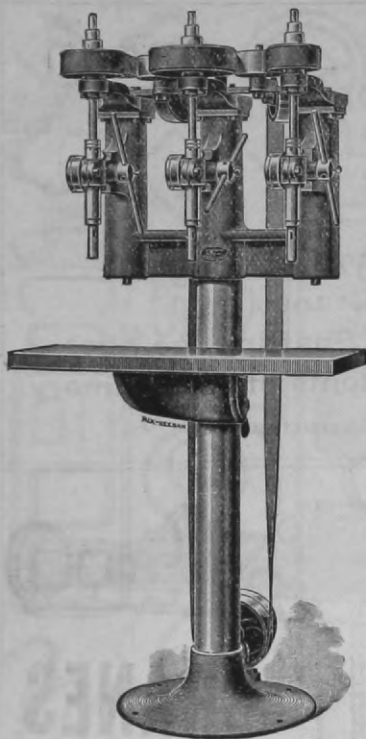
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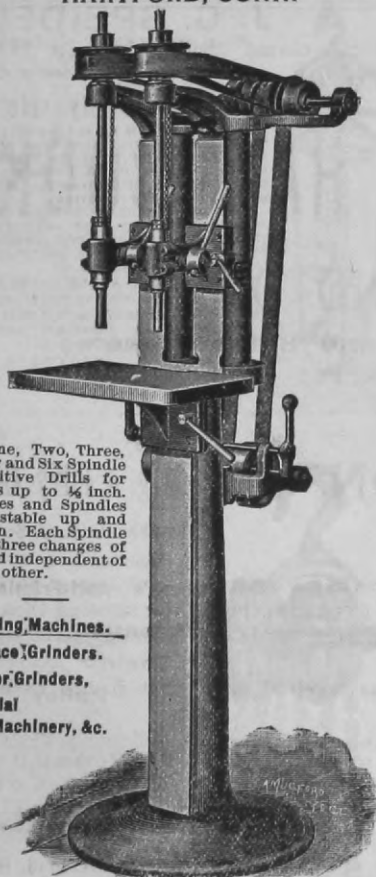
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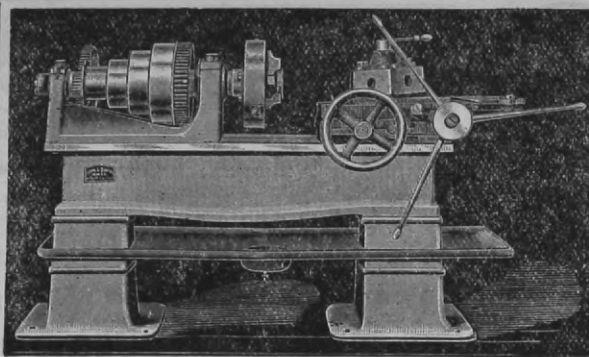
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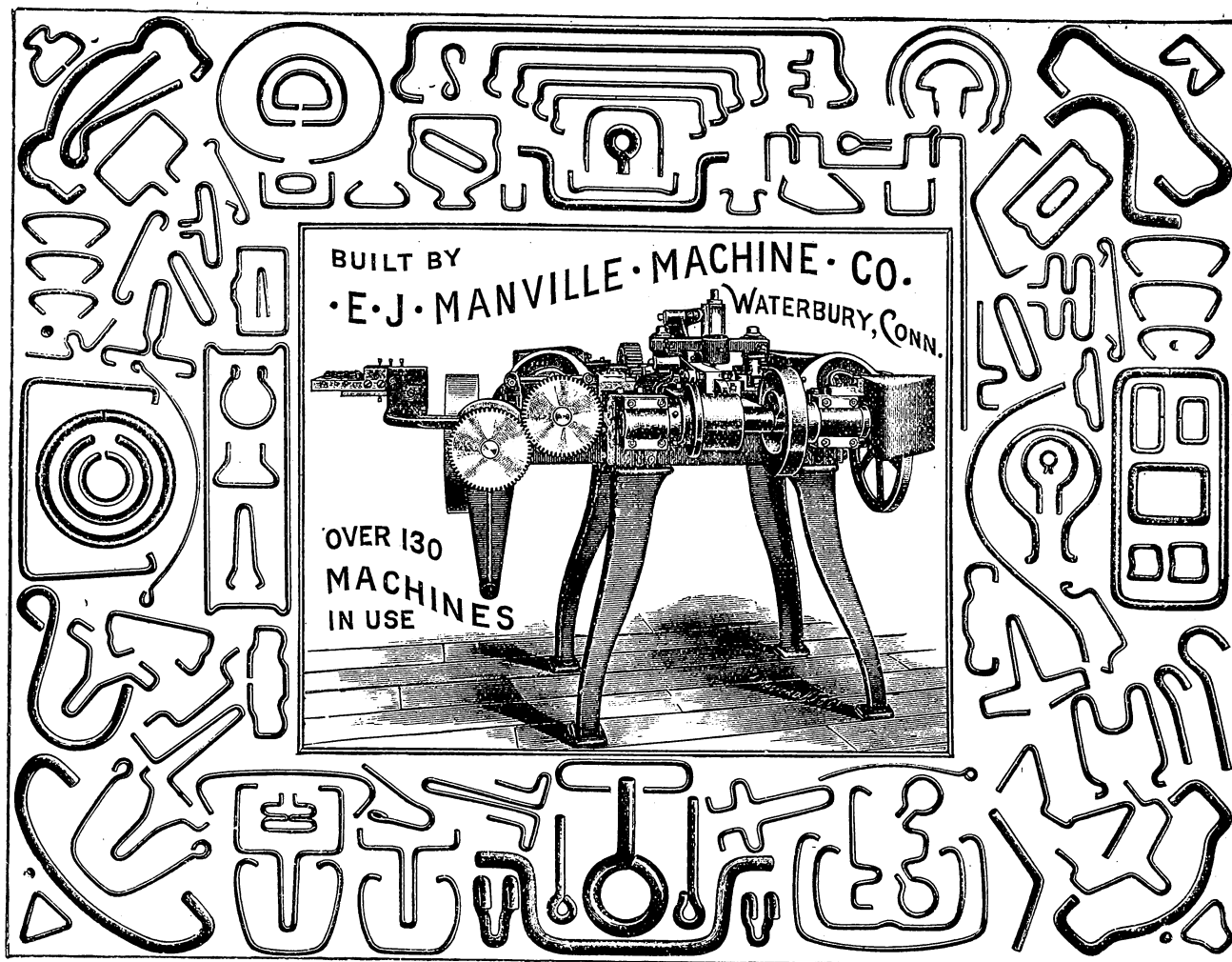
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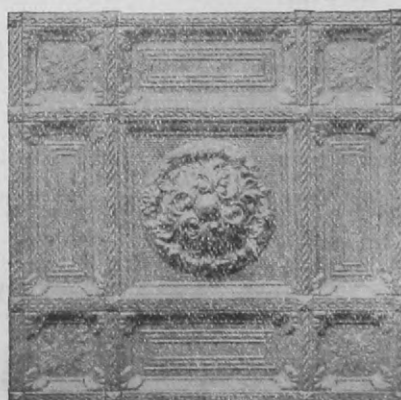
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Arranged by R. R. WILLIAMS, Hardware Editor of the Iron Age.

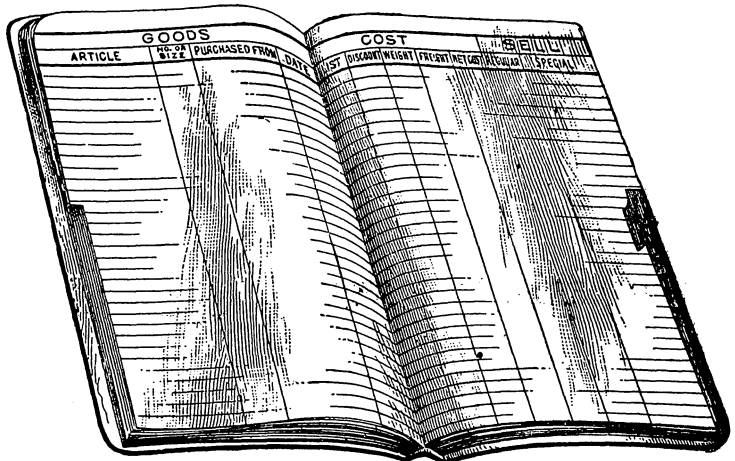
These Books are printed on paper of superior quality and bound in grain seal leather.

Columns are provided for the name and number or size, for noting from whom purchased, date of quotation or purchase, list and discount, and for entering freight expenses as an element of cost. Under the heading of selling prices, the regular and any special price, or remarks in regard to the goods are given place. This book goes into considerable detail in describing the goods and cost prices. It has been arranged in accordance with the views of many Hardwaremen whose methods are careful and exact.

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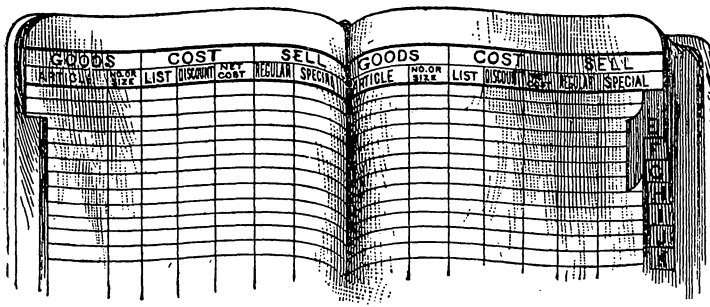
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In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

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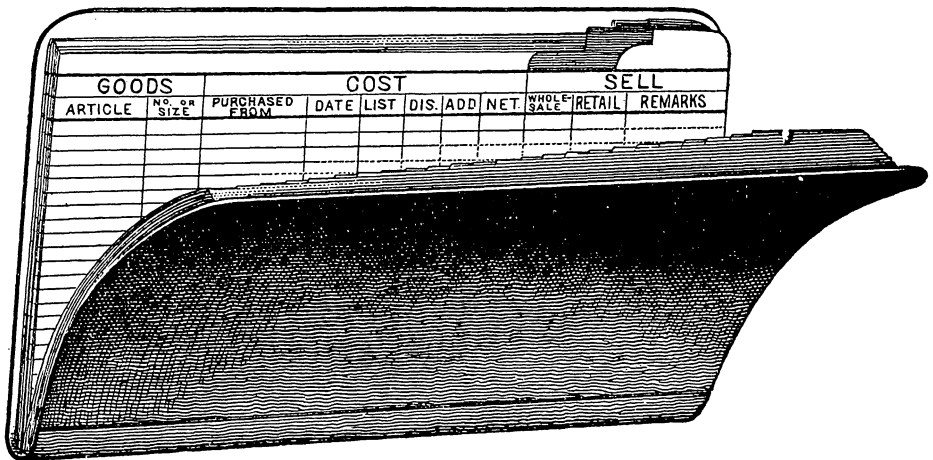
Hardware Price Book B.

The headings in Book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in Book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price, and also for any remarks in regard to cost of the goods, desirability of pushing them, or other matters.

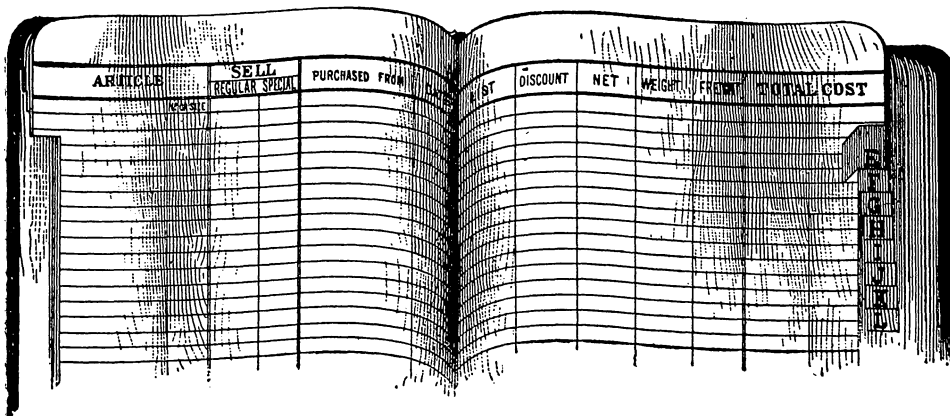
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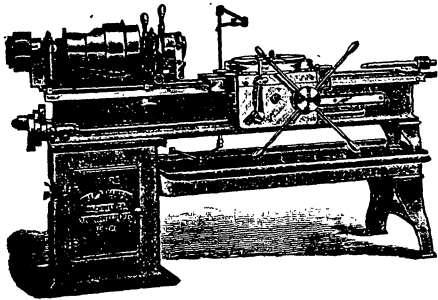
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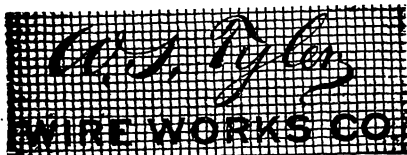


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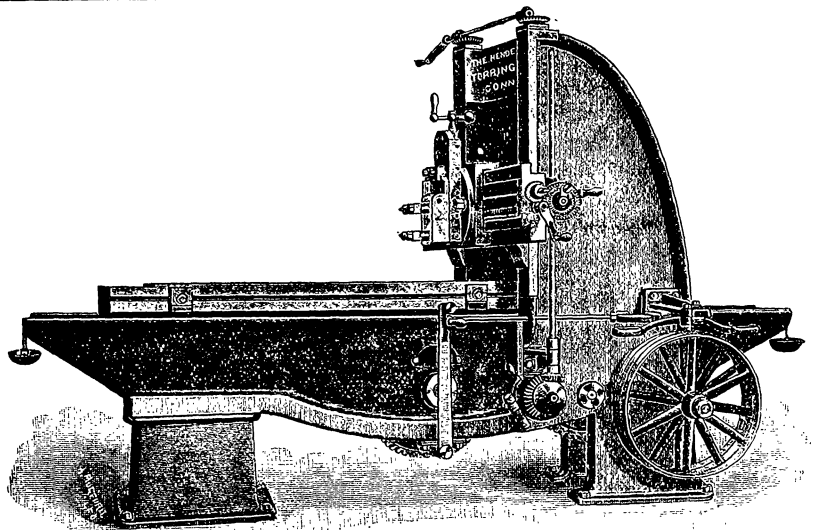
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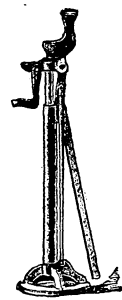


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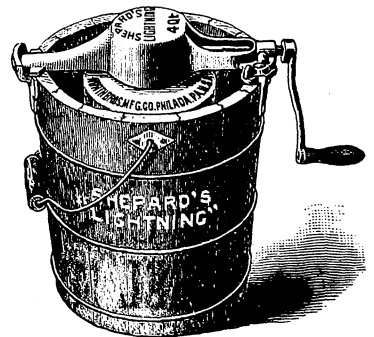
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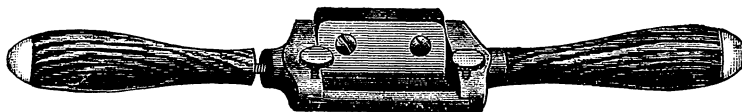


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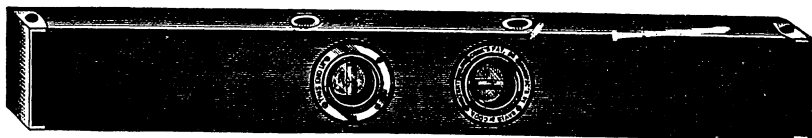
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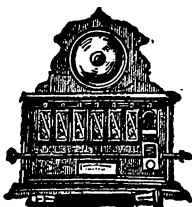
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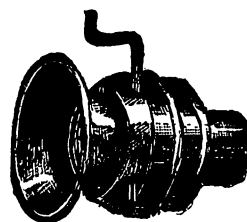


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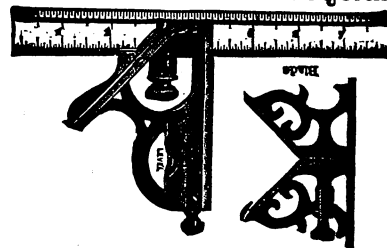
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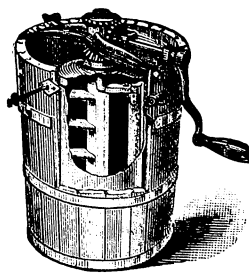
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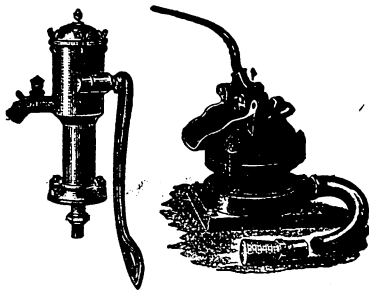
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Fig. 381.

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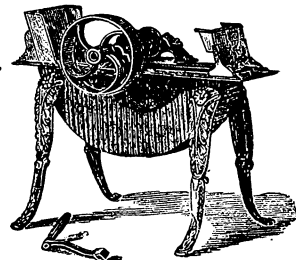
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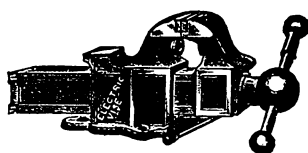
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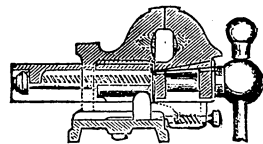


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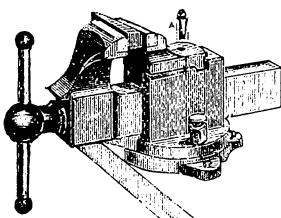
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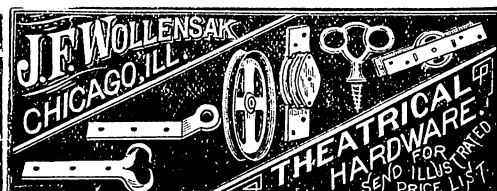
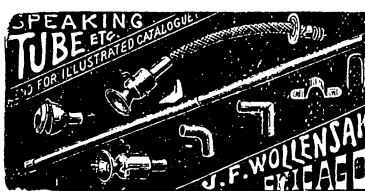
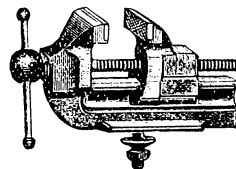
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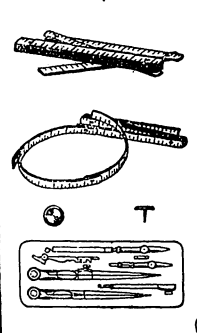
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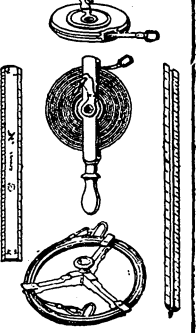
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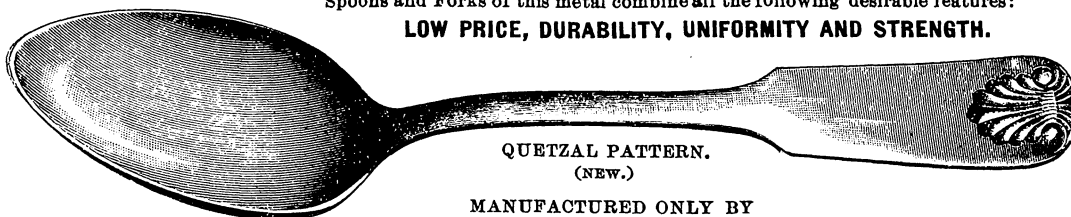


AZTEC COIN METAL

MADE INTO SPOONS AND FORKS.

Spoons and Forks of this metal combine all the following desirable features:

LOW PRICE, DURABILITY, UNIFORMITY AND STRENGTH.



QUETZAL PATTERN.
(NEW.)

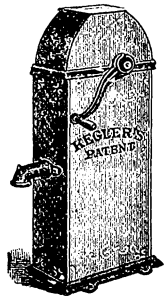
MANUFACTURED ONLY BY

THE HOLMES & EDWARDS SILVER CO.,

Bridgeport, Conn.

AZTEC COIN METAL
has no plating to
wear off. Made
of solid metal.
Easily kept clean.

IRON INSTEAD OF WOOD.
GALVANIZED IRON
TUBING and CURB,
— FOR —
CHAIN PUMPS,
(Kegler's Patent)
Are Giving Universal Satisfaction.

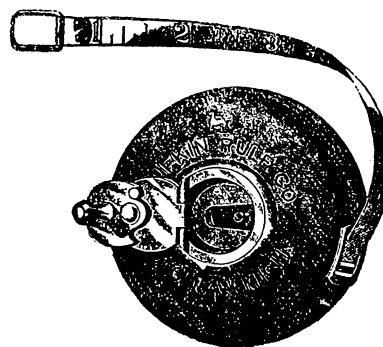


BECAUSE:

They do not rust and accumulate filth—always clean. Extreme lightness is combined with strength and durability. No freezing. No waste of water by reason of enlarged reservoir at top of tubing. No annoying wheel at bottom. Easy to handle. Tubing weighs less than 1/4 lb. per ft., is connected by couplings and can be attached to any make of curb.

Send for Catalogue.

Bellevue Pump Co., Bellevue, Iowa.

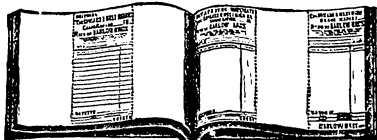


"RELIABLE"
Steel Measuring Tapes.

Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

LUFKIN RULE CO., Saginaw, Mich.

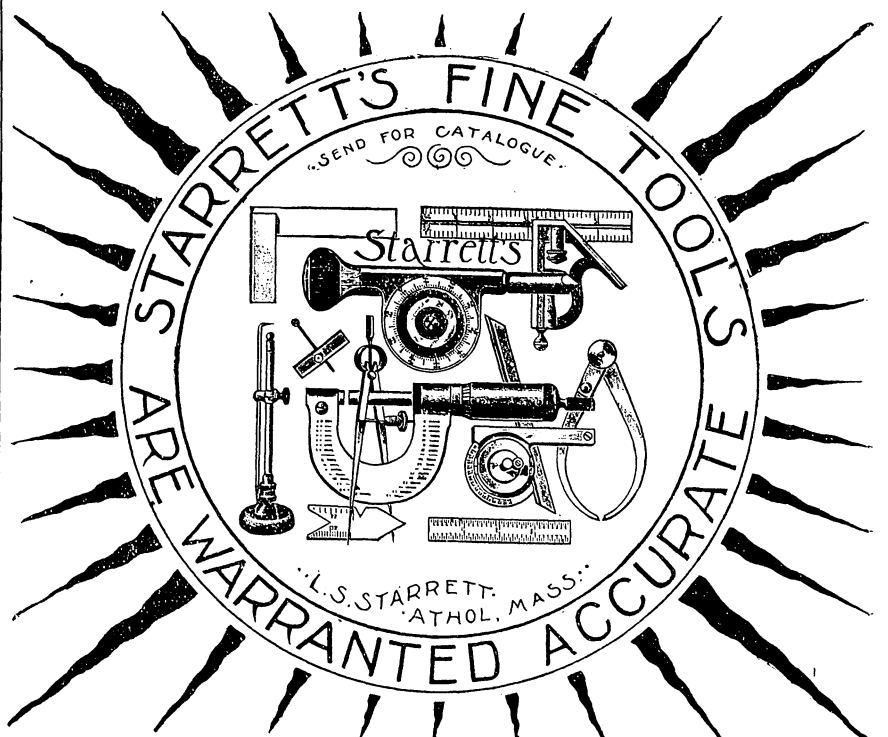
"DOST THOU LOVE LIFE?"
THEN DO NOT SQUANDER
TIME
FOR THAT'S THE STUFF
LIFE IS MADE OF



SAVE TIME TROUBLE & CASH
BY USING
BARLOW'S PAT. MANIFOLD
SHIPPING BLANKS
BARLOW BROS. GRAND RAPIDS, MICH.

PHILLIPS
SCREENS

Are Reliable.



GEO. N. CLEMSON, Pres.

LOUIS DUHME, Vice-Pres.

ROBERT J. JOHNSON, Treas.

F. B. EARLE, Sec.

The National Saw Co.,

OPERATING

Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y. Woodrough & McParlin, Cincinnati, O. Woodrough & Clemson, Boston, Mass. Monhagen Steel Works, Middletown, N. Y. Richardson Brothers, Newark, N. J. Harvey W. Peace Co., Brooklyn, N. Y. Pennsylvania Saw Co., Philadelphia, Pa.

GENERAL OFFICE

96 & 98 READE ST.,

NEW YORK.

SAWS

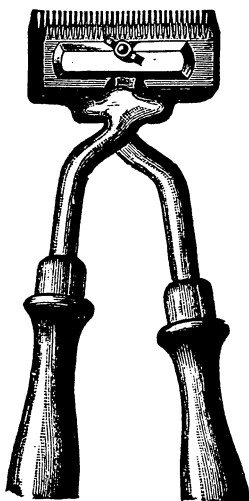
BUSINESS ESTABLISHED
1798.INCORPORATED
1891.

JOS. F. McCOY CO.

26 Warren St., New York,

Headquarters for

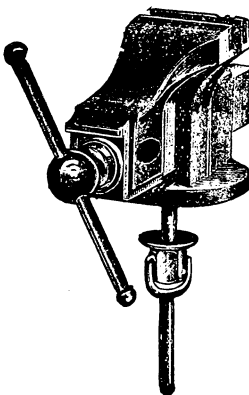
Coates' Horse Clipper



AND
Barber
Clippers.

ALSO
THE "BELL"
AND
THE "COMET"
Horse
Clippers.

At prices to suit
the times.



HOLLANDS'
OFFSET JAW
VISE.

Specially adapted
for drill press work
where chucks can
not be used and
equally good for
special or regular
bench work.

Hollands Mfg. Co.
ERIE, PA.,
Manufacturers all
styles VISES.

NEW ADJUSTABLE BENCH LEVEL

WITH GRIND AND GRADUATED VIAL.

4-6 and 8 inch.

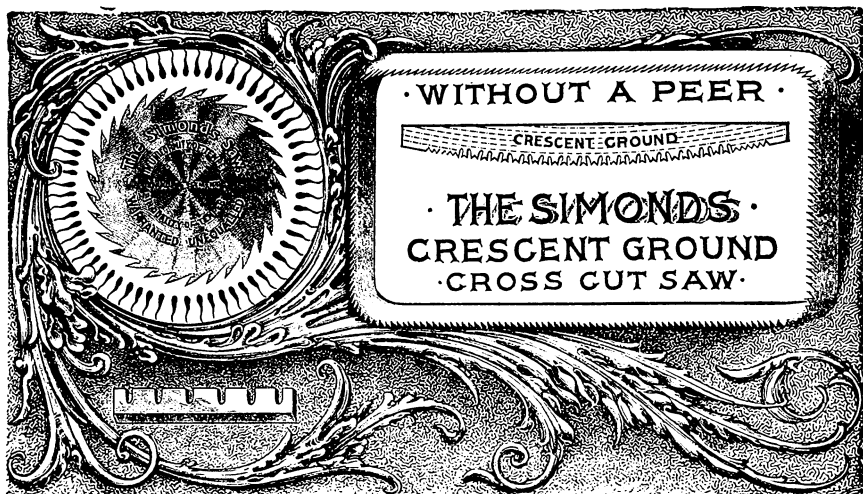


Three Sizes.

MANUFACTURED BY

C. F. RICHARDSON & SON,

ATHOL, MASS.

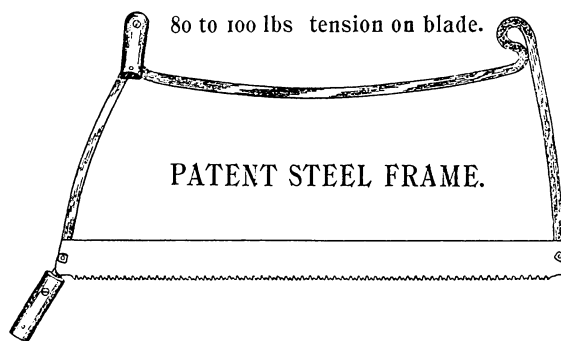


· WITHOUT A PEER ·

CRESCENT GROUND

· THE SIMONDS ·
CRESCENT GROUND
· CROSS CUT SAW ·

Simonds Mfg. Co. Simonds Saw Co.
FITCHBURG, MASS. CHICAGO, ILL. SAN FRANCISCO CAL. PORTLAND, ORE.



80 to 100 lbs tension on blade.

PATENT STEEL FRAME.

Will do work faster
and better than any
other saw known.
Will last a life-time.

For Prices Address

Butler Mfg. Co.,

P. O. BOX 2180,

BOSTON, MASS.

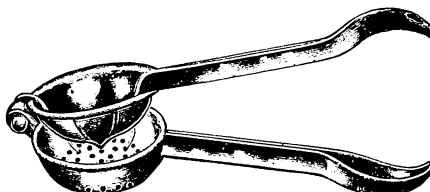
FACTORY, 330 to 338 First Street, So. Boston.

The Taintor Positive Saw Set.

Mechanics are now inquiring for this tool, and Hardware Dealers should have them in stock, or at least have a sample.

For Prices and Discounts, address

WIEBUSCH & HILGER, LTD., SOLE AGENTS,
84 and 86 Chambers Street, NEW YORK.



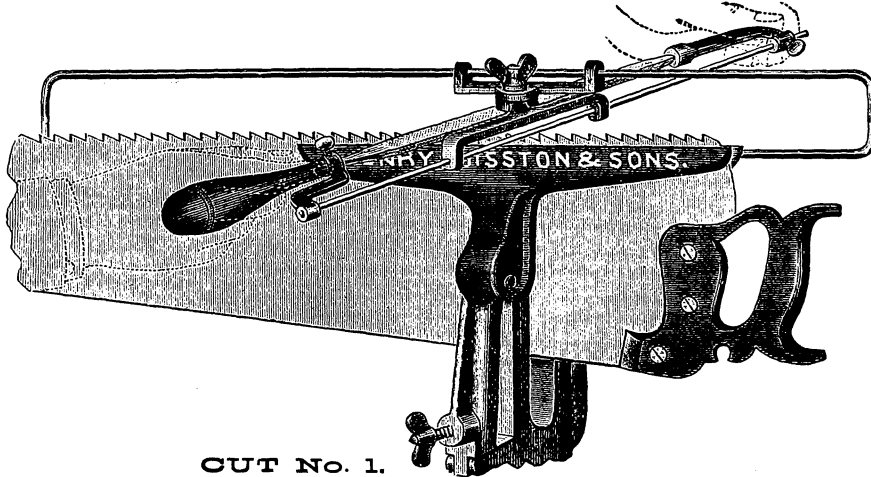
Do you make Lemonade?

If so you want our Squeezer. Positively
the best. Suitable for any size Lemon.
Write for samples, catalogue and prices.

BERGER BROS., 237 Arch St., Philadelphia, Pa.

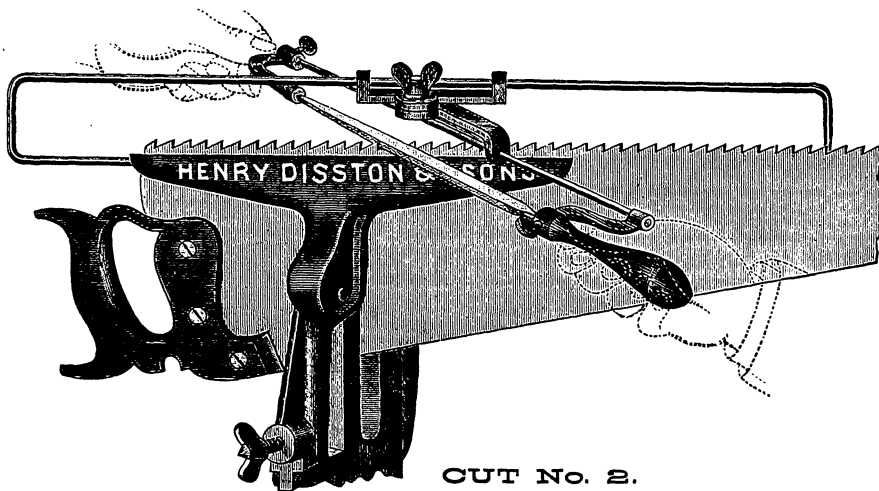
DISSTON'S Improved Saw Clamp AND FILING GUIDE.

ESPECIALLY DESIGNED TO ASSIST THOSE NOT SKILLED IN THE ART
OF SAW FILING TO FILE A SAW CORRECTLY.



CUT No. 1.

Cut No. 1 shows a saw and the attachment in proper position for filing the first side; and Cut No. 2 shows the saw and attachment reversed and in position to file the second side. There are three marks on one of the hubs of the swivel attachment, and one mark on the other. One of the three marks shows when it is in position No. 1, and the other designates when it is in position as shown in No. 2. The third, or centre, marks show when it is in position for filing Rip Saws.



CUT No. 2.

To obtain the correct position, loosen the wing nut and move the guide around to the point desired; after tightening wing nut, loosen screw in file handle, then turn handle until file gives the shape tooth wanted.

A good way is to select a tooth of correct shape and let file down into it, tighten set screw in handle, then file a tooth to see if the shape suits. If not turn the file a little to the right or left and try another tooth until the proper shape is obtained. Then file every other tooth, see cut No. 1; when one side is filed, reverse saw and attachment and adjust as in No. 2, and file the other teeth. For Rip Saws, place the file at right angles with the saw and file every tooth. Always keep the file as nearly horizontal as possible.

This filing guide is sold only attached to our No. 3 Improved Clamp or Vise, and not sold separately. We recommend this as the best saw clamp on the market, being quickly and easily adjusted, and not liable to get out of order.

Write for price including No. 3 Clamp, Filing Guide, File and Handle complete: Packed one in a wooden box.

Henry Disston & Sons, Philadelphia, Penn. INCORPORATED,

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Samuel W. Allerton, Pres.

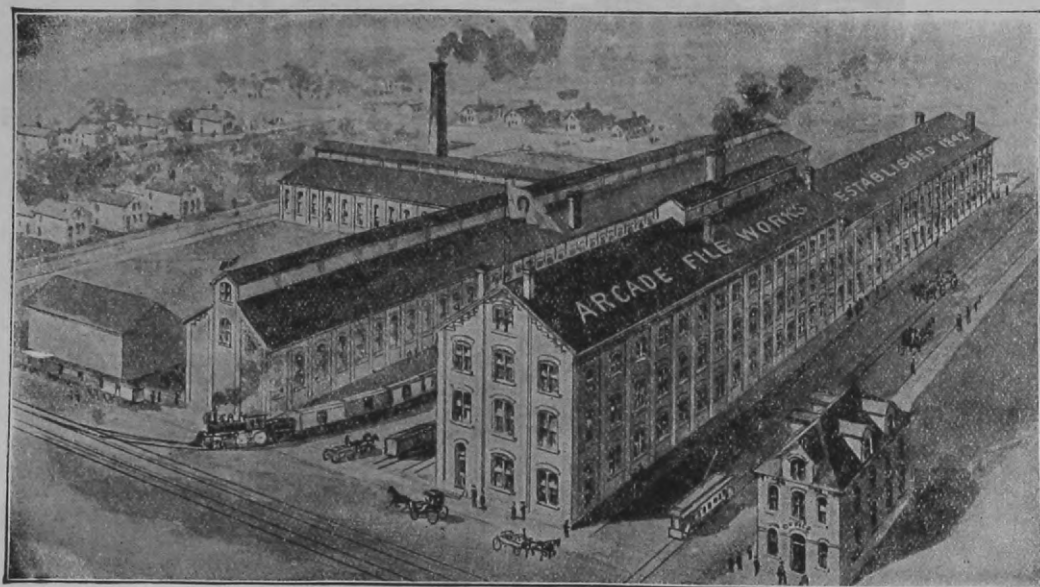
Courtlandt C. Clarke, Sec. and Treas.

Alfred Weed, Vice-Pres. & Gen. Manager.

ARCADE FILE WORKS.

ESTABLISHED 1842.

East Office and Warehouse,
83 READE STREET, NEW YORK CITY.



Western Office and Warehouse
23 LAKE STREET, - CHICAGO, ILL.

Works: ANDERSON, IND.

THE FILES THAT LEAD THEM ALL.

THE BEST EQUIPPED FILE WORKS IN THE WORLD.

The fact that we alone use the improved File Machinery recently invented by Alfred Weed, and the even heat of natural gas, enables us to produce a file that will cut faster and wear longer than any on the market.

Warranted Better than the Best ENGLISH ANVIL

Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough untempered steel, never to break or bend. Only Anvil made in the United States fully warranted as above.

FISHER DOUBLE-SCREW VISE

IS FULLY WARRANTED STRONGER THAN ANY OTHER LEG VISE, AND ALWAYS PARALLEL. Is the best Vise for Machine Shops and Blacksmiths, and for all heavy work. ACCURATE AND DURABLE. Send for Circular.

EAGLE ANVIL WORKS,

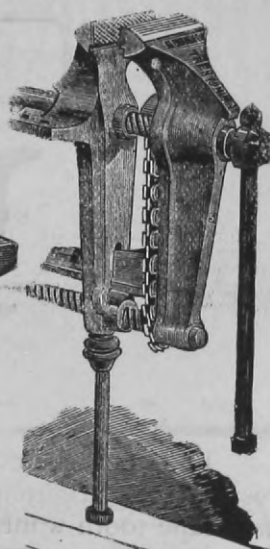
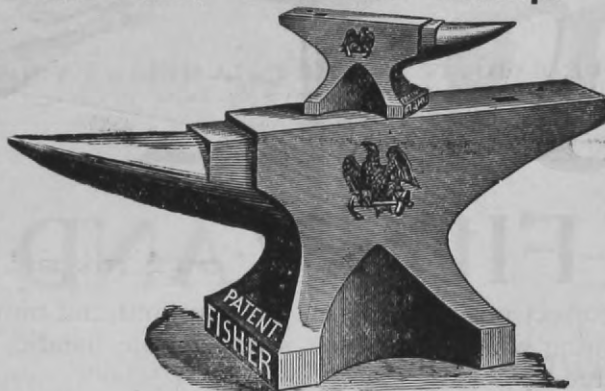
Trenton, N. J.

Sold in New York by our Agents, J. C. McCarty & Co., 97 Chambers St., The Russell & Erwin Mfg. Co., 45 Chambers St.

ESTABLISHED 1843.
MORE THAN 200 DIFFERENT PATTERNS.

None Genuine without our Trade-Mark.

EAGLE and "FISHER" Stamp.

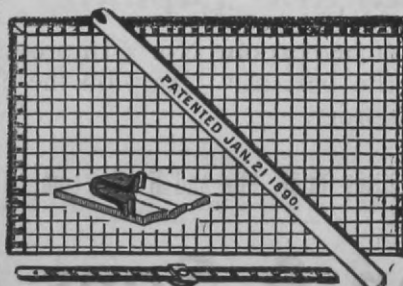


JOHN LOYD,



Machine Knives, Shear Blades,
Presses and Dies.

Nos. 558 to 562, Water Street, New York.



The Canton Glass Board.

Cuts any Fraction of an Inch by Eighths.

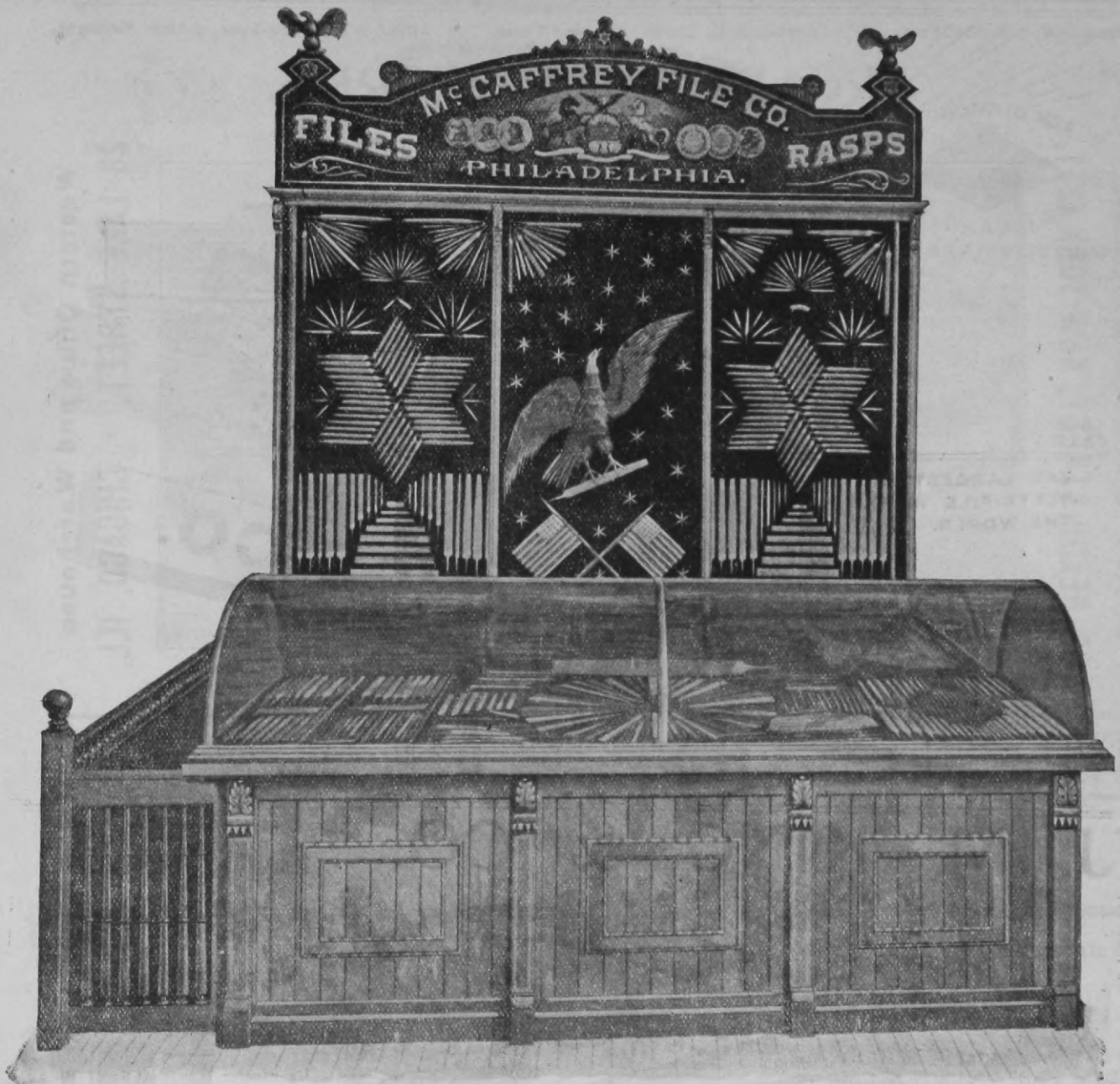
Unequaled for accuracy and quick work in cutting square or at any angle. Saves breakages, &c.

—ALSO—

IMPROVED TRAMMEL RULE for Cutting Circles
From 3 inches up to 48 inches, Segments,
Gothic Shapes, &c.

Send for Circular.

The Canton Saw Co., Canton, Ohio.



OUR EXHIBIT AT THE COLUMBIAN EXPOSITION.

A FULL LINE OF

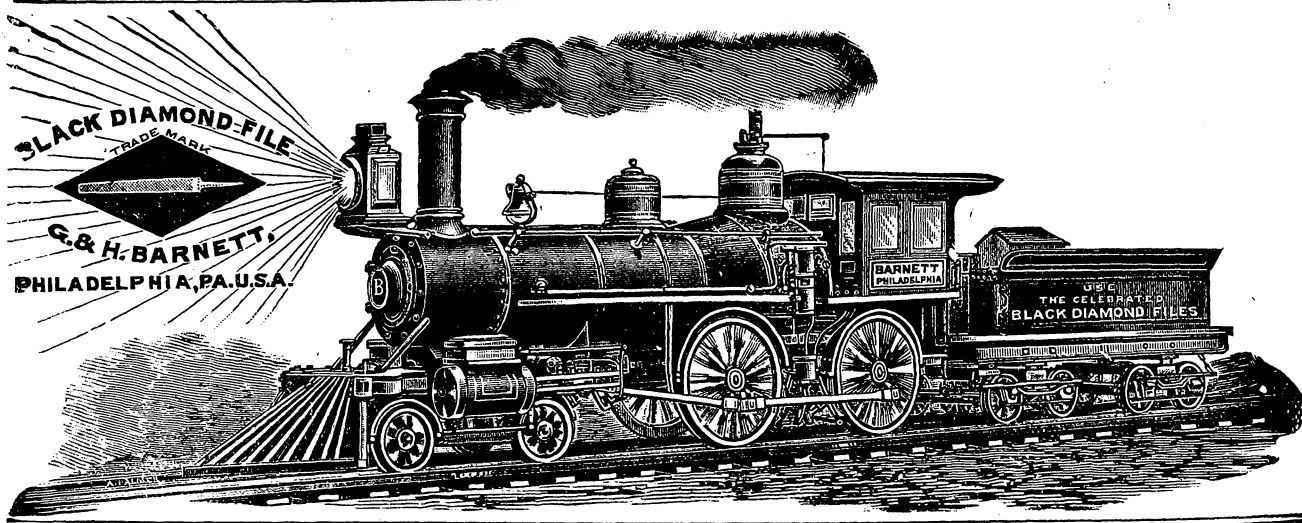
FILES AND RASPS.

WE MANUFACTURE our own goods and claim for them SHARPNESS OF TOOTH, TENACITY OF TEMPER, AND SUPERIOR WEARING QUALITIES.

Blue Ribbon with Medal and Diploma Awarded to us at the World's Columbian Exposition.

McCAFFREY FILE CO., 5th and Berks Streets,
PHILADELPHIA.

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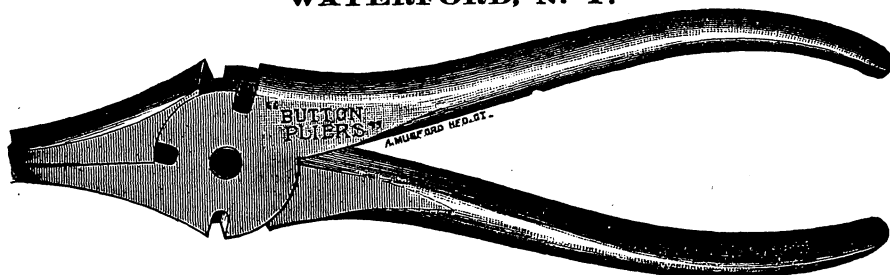
THE LARGEST AND MOST COMPLETE FILE WORKS IN THE WORLD.

NICHOLSON FILE CO.
PROVIDENCE, R. I.

3000
VARIETIES FILES
[X.F.] AND INCREMENT CUT FILES

J. M. KING & CO.,
WATERFORD, N. Y.

Manufacturers of
BUTTON'S



**Pat. Wire Cutter
AND PLIER COMBINED.**

Specially Adapted for Use on Wire Fence.

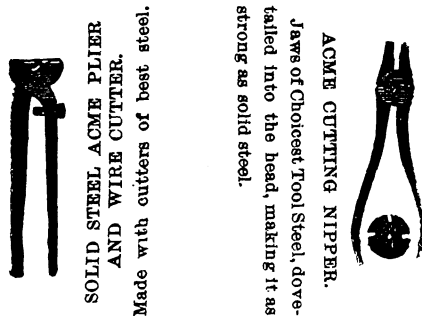
Also Manufacturers of BLACKSMITHS' and
MACHINISTS' STOCKS and DIES, PLUG and
TAPER TAPS, HAND, NUT and SCREW
TAPS, PIPE TAPS and REAMERS.

Price-List on Application.

Established by DANIEL B. KING, 1829.

ACME CUTTING TOOLS.

Made in all Sizes.



HIGGANUM HARDWARE CO., HIGGANUM, CONN.
New York Office, 18 CHAS Street.

**JESSE JONES & CO.
HARDWARE
SHELF BOXES**

Made of Wood
No screws or
nails used to work
out and cut
your shelves

615 & 617 Commerce St., Phila.
Send for circular and list of references.

BEST
CRUCIBLE
STEEL.

"TROJAN" HORSE RASPS.

LOWEST
IN
PRICE.

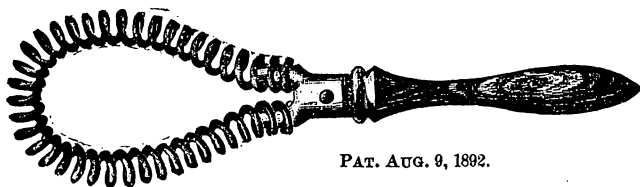
STRONGEST
TOOTH.

BANKER & WHITE,
(Troy File Works.)

TROY, N. Y.

LET
US
QUOTE.

THE BOSS DUST BEATER.



PAT. AUG. 9, 1892.

NEAT, DURABLE, AND DOES THE BUSINESS.

For removing dust and filth from Clothing, Upholstered Furniture, Rugs and Carpets it is just the thing. Will raise the nap and so improve the appearance. Will not, like other Dust Beaters, leave marks, nor tear the fabric. The coil is of steel wire secured in a malleable iron socket and attached to an enameled wooden handle. Just what everybody wants.

Retail Price, 25 Cents. Sent by Mail, 35 Cents.

PEABODY & PARKS,
Manufacturers,
TROY, N. Y.

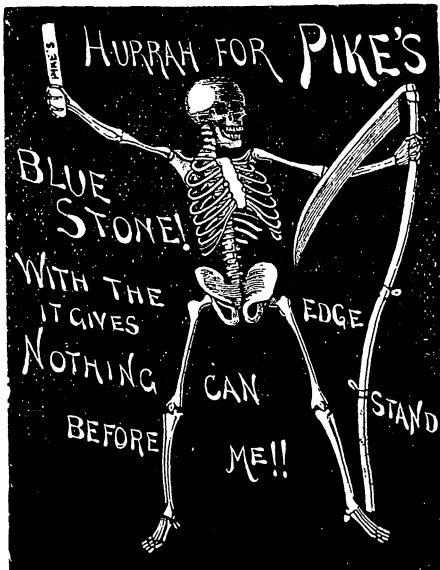
Whether or No

THE WILSON BILL PASSES,

America will still supply the world with **Whetstones**. For there is nothing equal to **American "GRIT,"** the best quality of which is found in **PIKE'S** leading brands of **SCYTHE** and **OIL STONES**.

FOR EXAMPLE:

PIKE'S
Indian Pond,
Black Diamond,
Lamoille,
Green Mountain,
Prem. Quinnebog
—AND—
White Mountain
SCYTHE STONES,
all sharp gritted, fast cutting,
strong and durable.



FOR EXAMPLE:

Lily White Washita,
Rosy Red Washita,
Arkansas,
Soft Arkansas,
Hindustan
—AND—
Chocolate
OIL and WATER STONES



Pike's Lily White Washita,

(WARRANTED)

BEST OIL STONE ON EARTH.

When making up your stock order bear in mind that desirable goods always sell—even in dull times. Bear in mind, also, that we have a very large stock of ALL KINDS SCYTHE STONES, OIL STONES, WATER STONES and RAZOR HONES which are thoroughly desirable, and WE ARE OFFERING INDUCEMENTS FOR YOUR STOCK ORDER. WE WANT IT.

THE PIKE MFG. CO.,

PIKE STATION, N. H.

TRADE MARK



John Wilson's Butchers' Knives and Steels, Skinning, Sticking, 'Farriers' & Shoe Knives,

Have established and maintained their reputation, for superiority,
against all Competitors, from

THE YEAR SEVENTEEN HUNDRED & FIFTY,

and are still in increasing demand. As in the past, it is the unalterable
DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.

WORKS: SYCAMORE STREET, SHEFFIELD, ENGLAND.

SOLE AGENTS FOR THE UNITED STATES, AND THE CANADAS.

Messrs. Hermann Boker & Co., 101 and 103 Duane St., New York.

CORPORATE MARK



JOSEPH RODGERS & SONS, Limited.

—MANUFACTURERS OF—

Pocket and Table Cutlery, Scissors, Razors, Erasers, &c., &c.

These goods have fully maintained their reputation as the best cutlery in the world for over

ONE HUNDRED AND FIFTY YEARS.

Any Infringements of our Name and Corporate Mark will be promptly prosecuted.

Sole Agents for the United States,

ALFRED FIELD & CO., 93 Chambers and 75 Reade Street, New York.

Established 1836.

ALFRED FIELD & CO.

93 Chambers and 75 Reade Streets,

NEW YORK.

IMPORTERS OF

HARDWARE CUTLERY. GUNS ANVILS
CHAINS, FILES.

SOLE AGENTS FOR

Joseph Rodgers & Sons, Best Cutlery in the world; W. K. & C. Peace, unrivaled Grass Hooks Straw Knives and Scythes; Joseph Elliot & Sons Celebrated Razors; Peugeot Frères, "French Toilet" and other Clippers; L. Hugoniot Tissot Fine Steel Pliers, &c.; Eley Bros., Caps, Wad Cartridge Cases, &c.; Webster & Horsfall, Steel Wire of every description.

Send for Rodgers' New Illustrated Catalogue

MANUFACTURERS of Ship Carpenters', Tinnners', Coopers' and Butchers' Tools. Our specialties are Meat Cutting Machine Knives Planing Mill Knives, Leather Splitting and Paper Cutting Machine Knives, Butchers' Cleavers, Bark Spuds, &c., &c. We solicit a share of your valued orders.

BUFFALO EDGE TOOL WORKS,

RIDGWAY, PA.

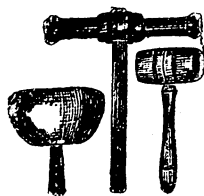
N. Y. MALLET AND HANDLE
WORKS.

MANUFACTURERS OF
MALLETS.

Also Cotton and Bale
Hooks.

Patented Feb. 13, 1877, a new
combination of Hooks.

436 E. HOUSTON ST.,
New York City.



THE UNIVERSAL BRACE.

Patented August 23, 1892.

Adapted to general use; also to the special use of boring and screw driving in Angles, Corners, close to Washboards and Walls, and in all places difficult or impossible to reach with the ordinary Brace

6, 7 and 8 inch SWEEPS.

Unequaled as a Corner Brace.

The crank arm revolves at right angles to the bit.

The frame is readily and firmly held in any desired position with one hand.

The thrust of the tool is directly in the line of the bit.

The operation is familiar, natural and convenient.

All parts are simple and durable.

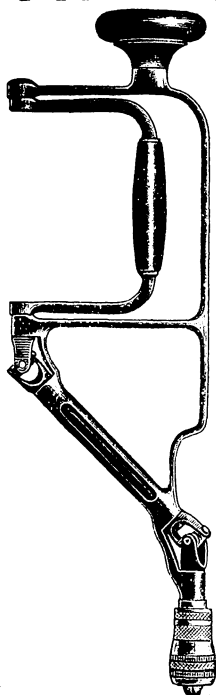
In case of damage, any part can be duplicated.

AGENCIES IN ALL THE PRINCIPAL CITIES.

The National Manufacturing Co.,

WILKES-BARRE, PA.

New York Office and Warehouse, 87 Liberty St.



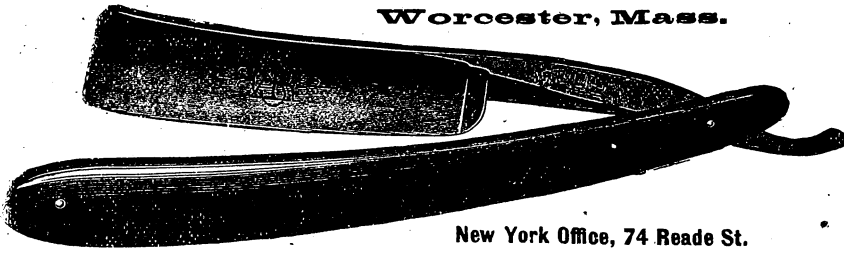
THE TRADE acknowledges our make of **BUTCHERS' STEELS**
THE BEST IN THE WORLD.

FOR CATALOGUES AND PRICE-LISTS ADDRESS

C. & A. HOFFMAN, Manufacturers. FRANKFORD, PHILA., PA.

J. R. TORREY RAZOR CO.,

Worcester, Mass.



New York Office, 74 Reade St.

Our Razors have become the standard for excellence and are no higher in price than the foreign. We manufacture and carry in stock more than 200 styles. Send for illustrated catalogue.

"Stamped with the BUCK'S HEAD."

BUCK BROTHERS EXTRA.

THE STANDARD.



BUCK BROTHERS,

MILLBURY, MASS.

The Most Complete Assortment in the U. S. of
Shank, Socket Firmer and Socket Framing
Chisels.

PLANE IRONS.

Buyers are cautioned against any parties who claim a recent connection (or any connection for over 20 years) with Buck Bros., or who represent goods as our make not stamped with the BUCK'S HEAD or BUCK BROTHERS in full.

ESTABLISHED, 1825.

R. HEINISCH'S SONS CO., NEWARK, N. J.

INCORPORATED, 1892.

New York Office, No. 90 Chambers Street.



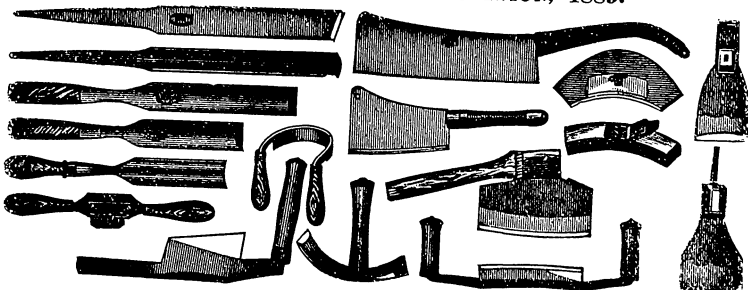
Tailors' Shears, Trimmers, Scissors,
Tinners' Snips, &c

CATALOGUES AND PRICES ON APPLICATION.

We have no contract with Messrs. Hermann Boker & Co. as Agents for the sale of our goods.

HIGHEST AWARD PARIS EXPOSITION, 1889.

ESTABLISHED 1837.
INCORPORATED 1892.

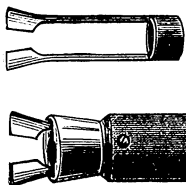


THE L. & I. J. WHITE CO.,
BUFFALO, N. Y.

MANUFACTURERS
OF
EDGE TOOLS.
Coopers', Carpenters' and Ship Tools, Plane Irons,
Cleavers, &c. Full Line Chisels.

NEW M. & P. RATCHET

BRACE.



POINTS:

Fewest parts of any.
No pins to cut.
The finest finish.
Oil tempered jaws.
Will hold twist drills.
Double the strength.
Strain equalized.
Steel clad head.
Steel and babbitt bearings.

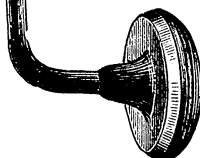
A BEAUTY.

MASON & PARKER,
Winchendon, - Mass.

Five Sizes.

6 to 14 in.

Sweep.



Cast Shears.

ACME SHEAR CO.,

BRIDGEPORT, - CONN.

MARTEN DOSCHER, Commission Hardware,

88 Chambers St., New York.

Agent—G. W. Bradley's Edge
Tools, Axes, Coopers' Tools.
Cleavers, Bush Hooks, Draw
Knives, Ship-Carpenters' Tools,
&c. Also a full stock of Planes,
Brooks' Bright Wire Goods,
Washita Stone, and Taunton
Tack Co.'s Rivets, &c.

ALASKA.

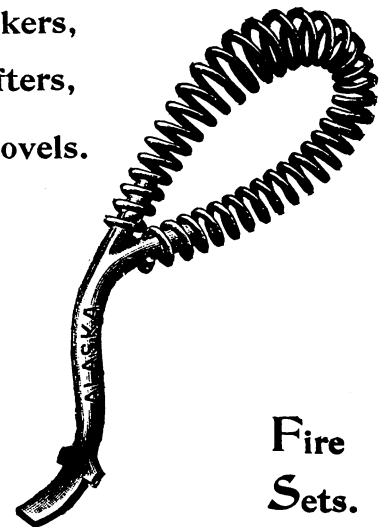
ALWAYS COLD.

Stove Trimmings.

Pokers,

Lifters,

Shovels.



Fire
Sets.

For Sale by All

First-class Jobbers in Hardware.

Made under Gaitly Patents and only by

Troy Nickel Works,
TROY, N. Y.

FRANCIS FROST & CO., Toronto, Ont.
Canadian Sales Agents.

WHEN IN WANT OF WOSTENHOLM'S I★XL



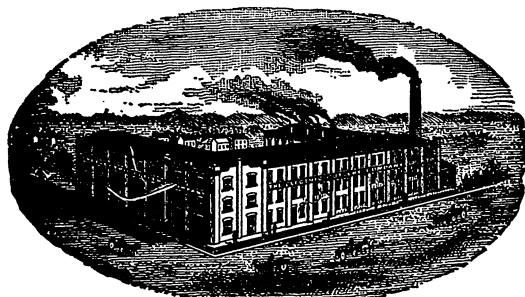
Knives or Razors,

SEND TO

FRED. B. GURNEY.

116 Chambers St., N. Y.

The Best Equipped Cutlery Works in the World.



FACTORY: FOURTH & DICKERSON STS. NEWARK, N. J.

THE ELECTRIC CUTLERY CO.,

113 Chambers St., N. Y., and Newark, N. J.

Manufacturers of Razors, Knives
Razor Strops, Scissors and Shears

(SEND FOR CATALOGUES.)

NORTHAMPTON CUTLERY CO.,

NORTHAMPTON, MASS., and 122 CHAMBERS ST., NEW YORK.



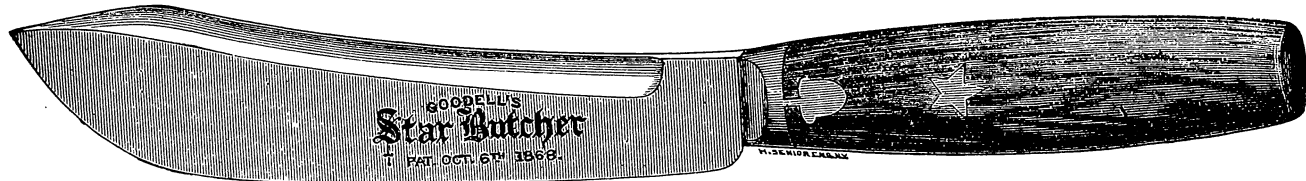
WE CALL ESPECIAL ATTENTION TO OUR COMPLETE LINE OF FINE GOODS IN RUBBER,
CELLULOID, BONE, IVORY, &c.

— OUR CLAIMS ARE: —

EXTRA QUALITY OF STEEL IN BLADES. SUPERIORITY IN GRINDING AND FINISH. STRENGTH AND DURABILITY

Made in Plain Steel or Heavily Plated Blades, Hand Burnished.

**THERE IS NOTHING NEW
TO SAY ABOUT THIS KNIFE EXCEPT
IT IS GROUND SHARP**



WE DON'T KNOW HOW TO IMPROVE IT.

Blade is made of steel especially prepared for the purpose, and it is made just right; finish excellent; shape unsurpassed; the handle just fits the hand.

GENERAL APPEARANCE IRREPROACHABLE.

Made in sizes from 5 inch to 8 inch; a strictly first-class butcher knife at a moderate price.

WE HAVE OTHER BUTCHER KNIVES,

4½ to 14 inch blade, that will cut as well, for less money. Also Table Knives and Forks, Carvers, Butcher Steels, Bread Knives, Cheese Knives, Butter Spades, Apple, Kitchen, Putty, Cigar, Shoe Knives, &c., &c., in great variety. We aim to make the best and sell at reasonable prices.

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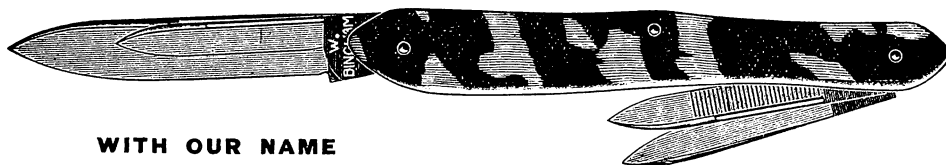
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WITH OUR NAME

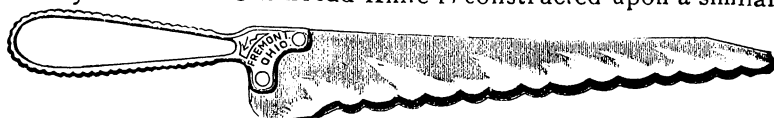
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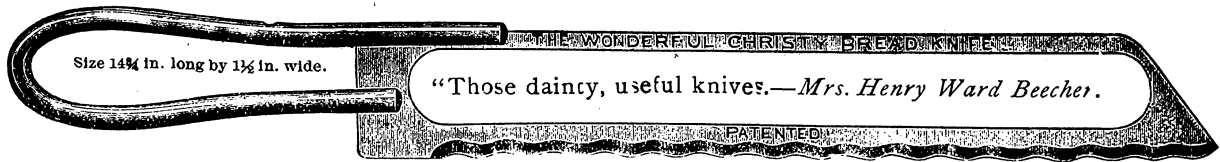
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Surpasses everything of its kind. Cuts meat of all kinds with exactness, and thick or thin, as you wish. Dealers who handle it say it's the best seller they ever had. Our Bread Knife is constructed upon a similar principle and is therefore equally good. Write for prices and discounts.

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Size 14 $\frac{1}{4}$ in. long by 1 $\frac{1}{2}$ in. wide.

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Solid steel from tip to tip, with *Scientific Grinding* of the Razor Steel Blade, carefully tempered and sharpened ready for use—Warranted perfect in every respect.

Ask your wholesale dealer for prices on Christy Knives. There are imitations and counterfeits with cast iron handle—cheap but not good.

You will find it profitable to be posted on Christy Knives.

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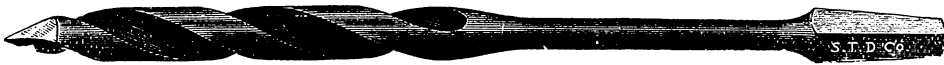
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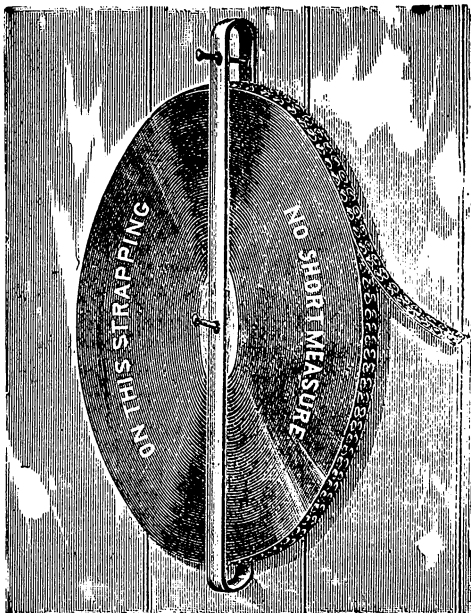
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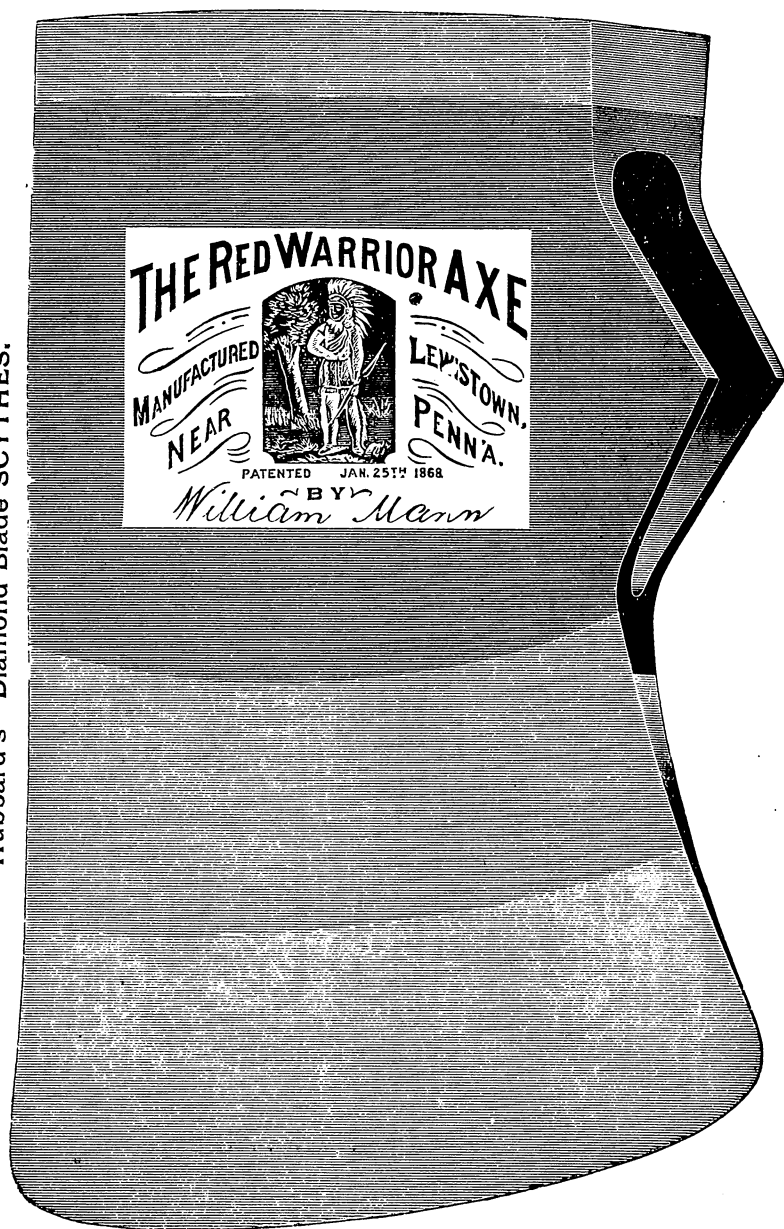
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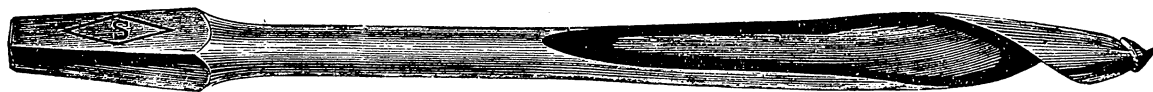


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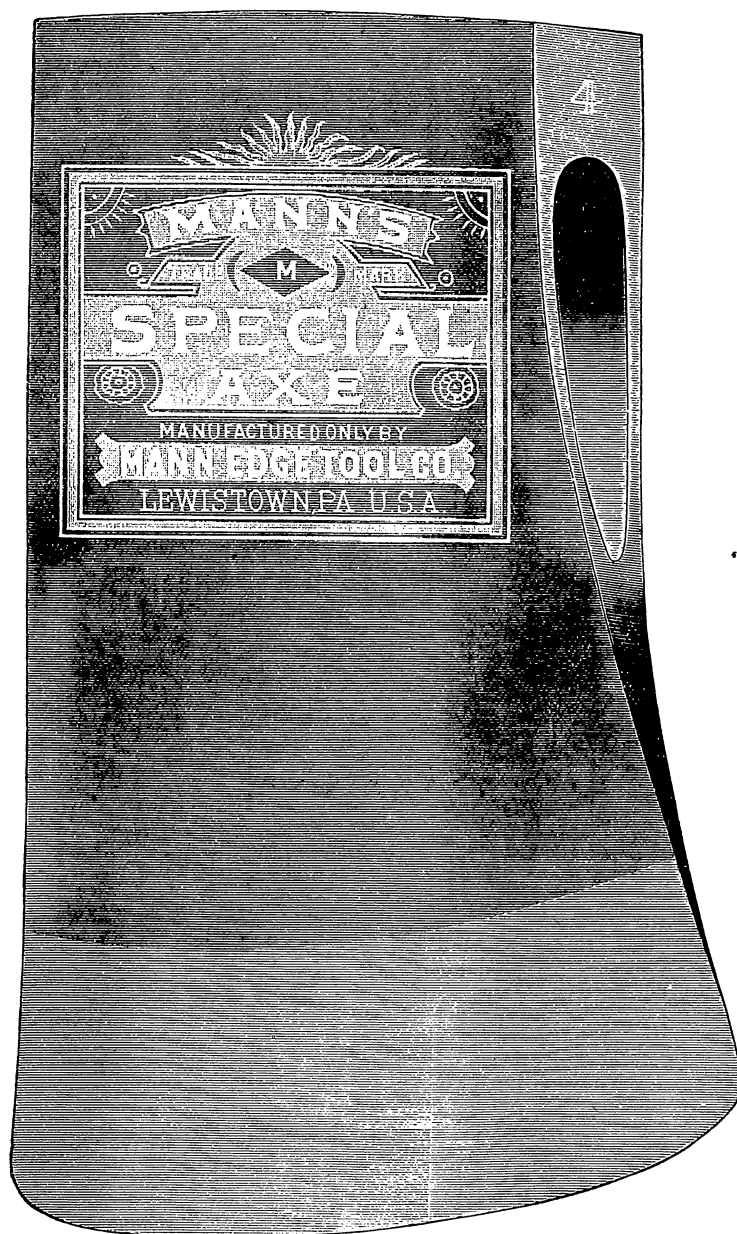
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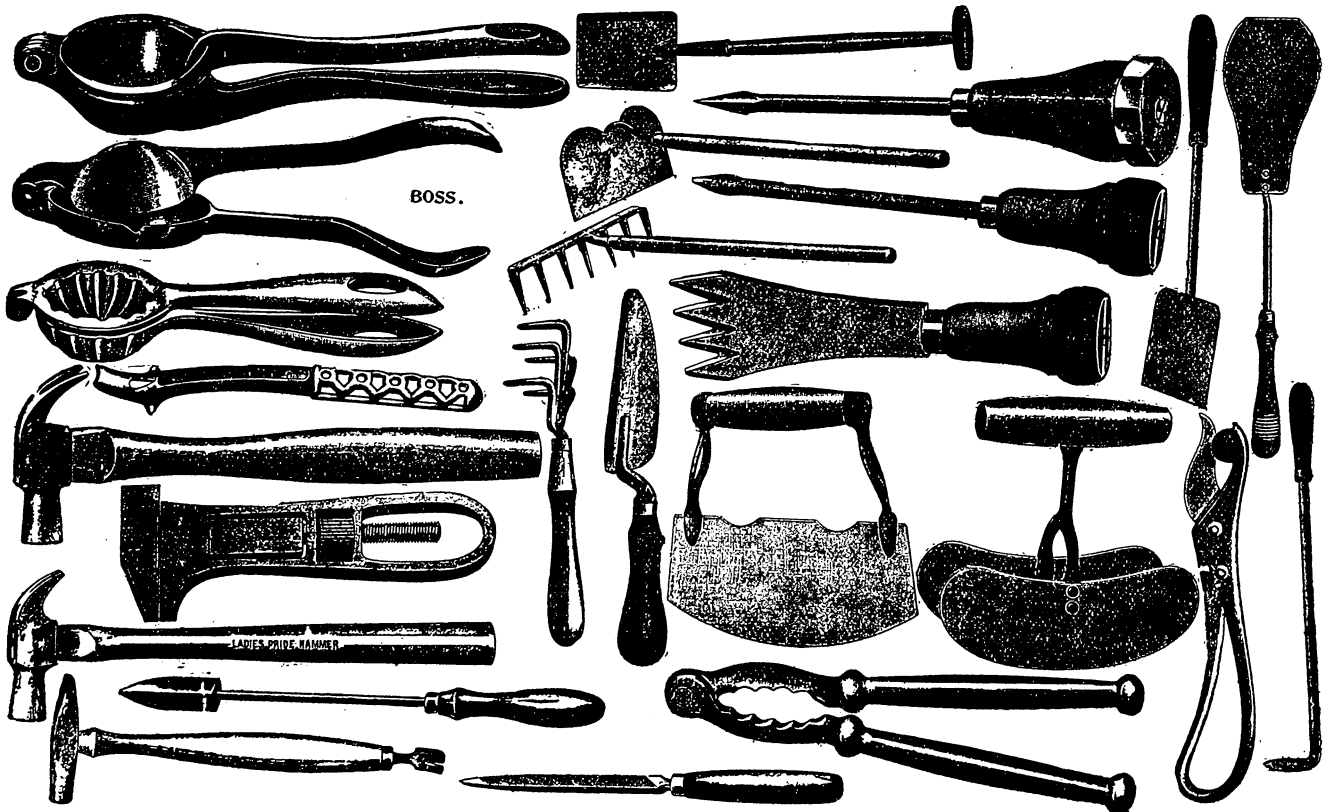
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Prevent all vibration and render Saw Filing noiseless.
Will make no more noise than Filing on a Solid Piece of Iron.

Have a Larger Sale than All Other Kinds Combined.

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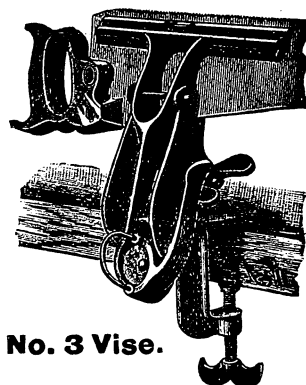
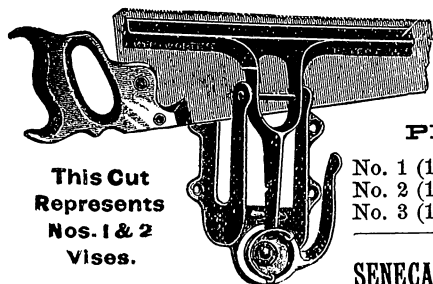
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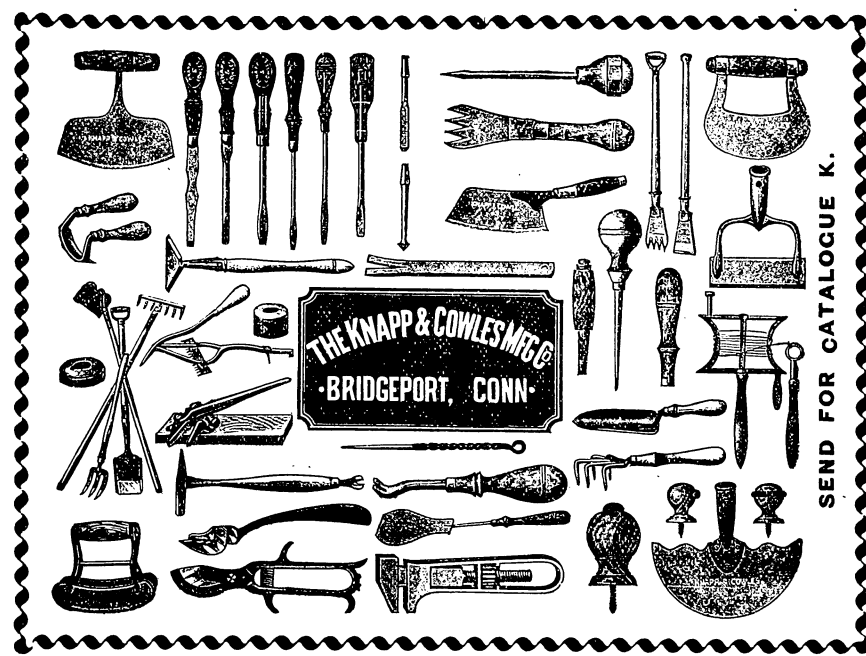
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This Cut
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Nos. 1 & 2
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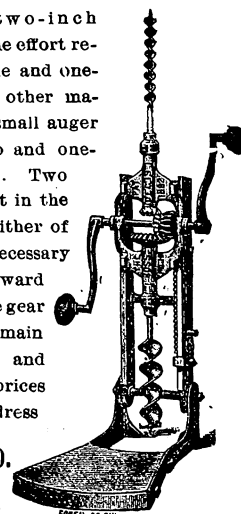
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The Boss 2-speed Boring Machine.

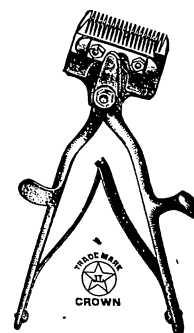
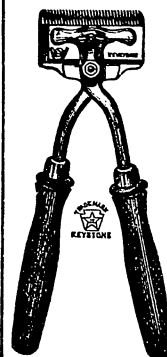
Will operate a two-inch auger with the same effort required in using one and one-half inch in any other machine, and for the small auger have a speed two and one-half times faster. Two augers may be kept in the machine, to use either of which it is only necessary to point it downward by first taking the gear frame out of main frame, inverting and replacing it. For prices and discounts address

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He seems to have hesitated somewhat in his reply to his Father, but concluding that "A bird in the hand is worth two in the bush," he said—but we all know what he did say—and he made a record.

Now, if George had been in possession of one of my "Anchor Brand" of Hatchets, he would not have made the record he did, and the school-boy of to-day would not have had that horrible example of integrity thrown at him. The mere possession of the "Anchor Brand" of Hatchet by the boy would have been sufficient evidence for the Father that he had cut the tree.

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THE VICTORIA.

We have a full line of above, which is the neatest pattern ever presented to the trade, and it is stamped



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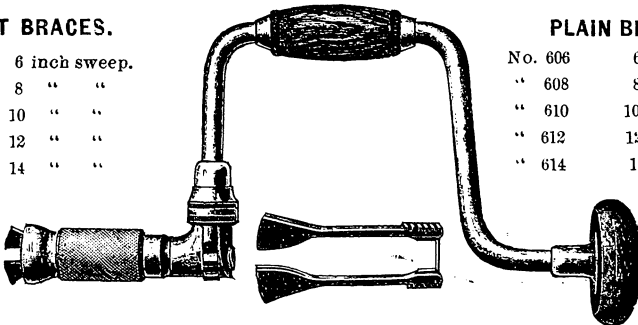
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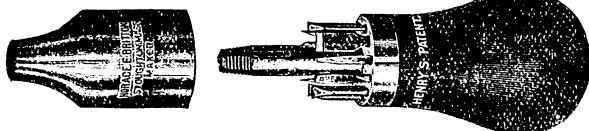
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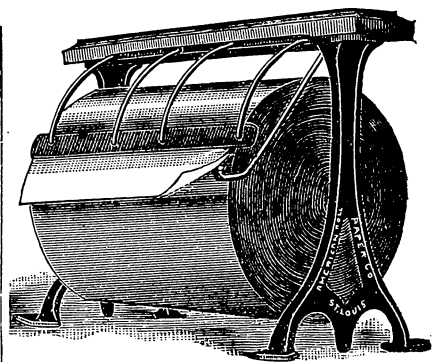
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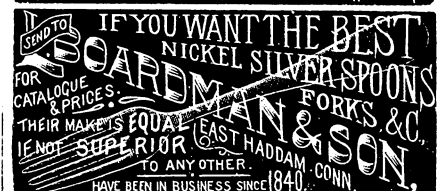


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General Hardware and Plumbers' Supply Houses

AT MANUFACTURERS' PRICES.

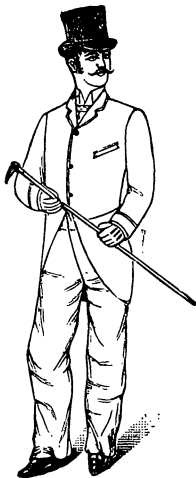
COVERT MFG. CO.,

WEST TROY, N. Y.

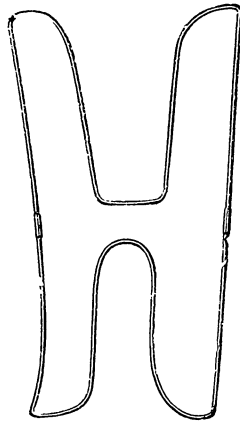
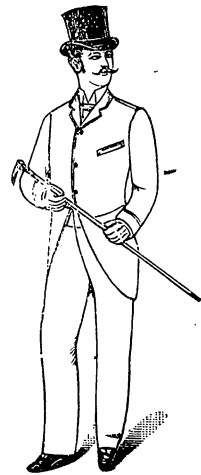
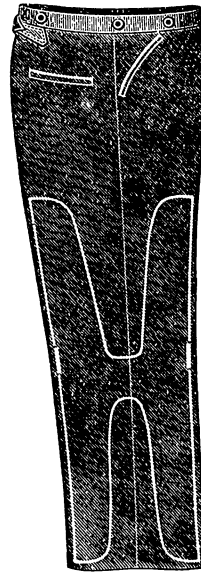




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Before Using.

Stretcher Ready
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Patented.

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GENTLEMEN using the Covert "Pants Stretcher" will find that their pantaloons will be restored to their original shape and length.

It removes all **WRINKLES** and **BAGGING AT THE KNEES**, and gives them the appearance of having just left the tailor's hands.

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It is made of steel wire, light and compact, and being made in sections can be packed in a valise when traveling. Sold by the trade, or

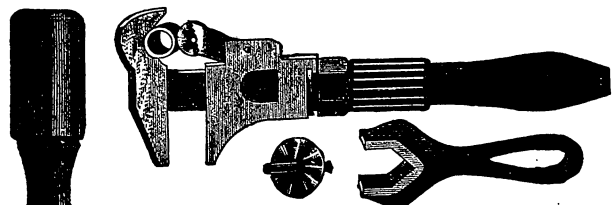
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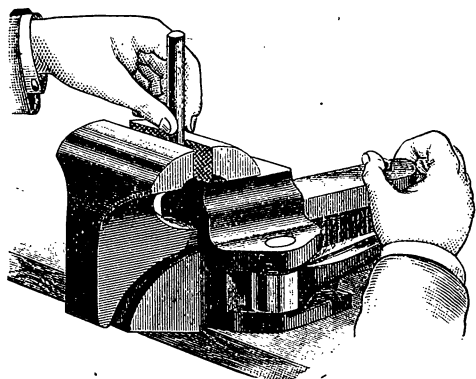
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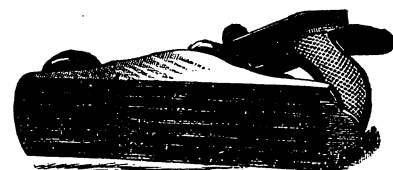
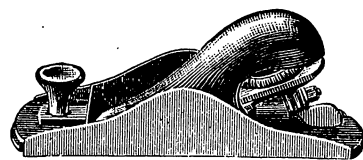
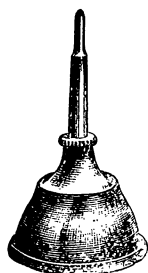
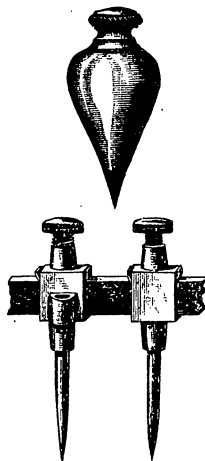
HIGH QUALITY TOOLS



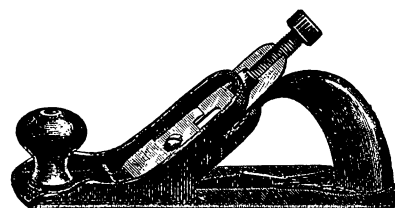
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Short or Long Sleeve Nuts, and
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Stephens' Patent Vises, Quick Adjust-
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Challenge Iron Planes.
Simplicity of Construction.

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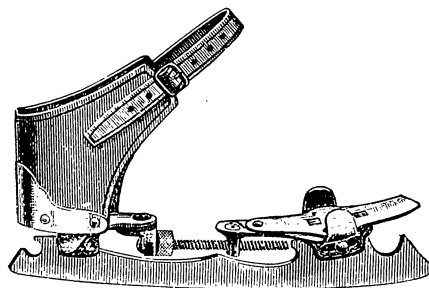
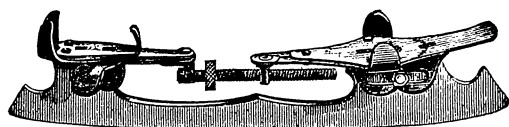
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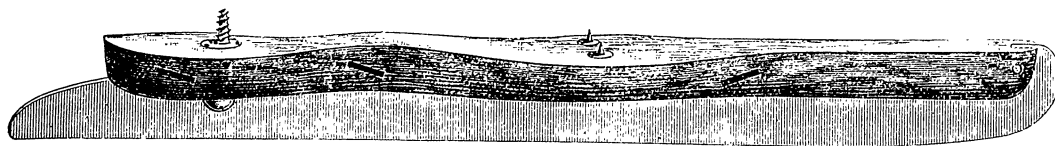
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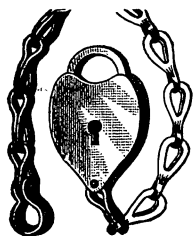
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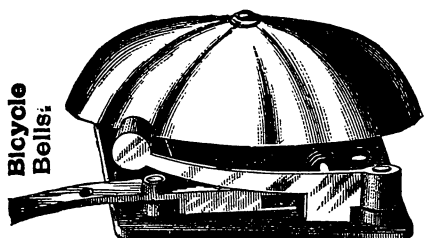


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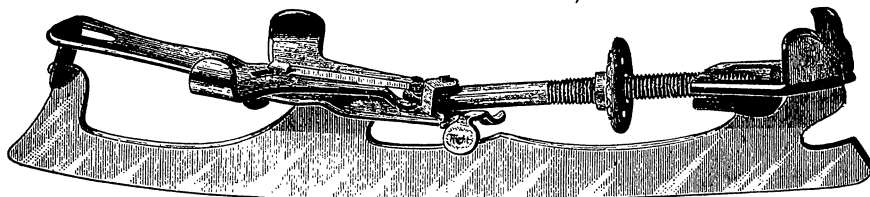
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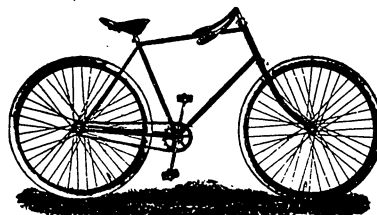


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MOST COMPLETE LINE MADE.

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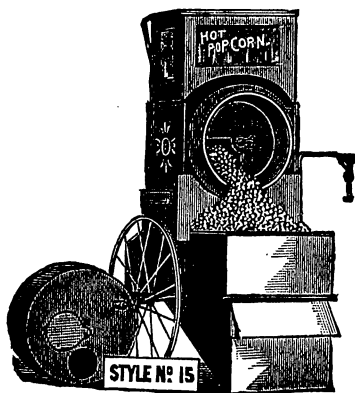
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YOUR SKATES WILL NOT RUST

IF YOU USE

PARAVASELINE.

It is a Lubricant that will prevent all kinds of metals from rusting.
WHEN YOU COME HOME AFTER SKATING
apply a light coat of Paravaseline to your skates and it will keep them in good condition.
ONE TUBE WILL LAST A YEAR
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The greatest wheel of fortune out, for any person 12 years and upward; \$1.00 to \$50.00 profit per day; 1500 now in use.

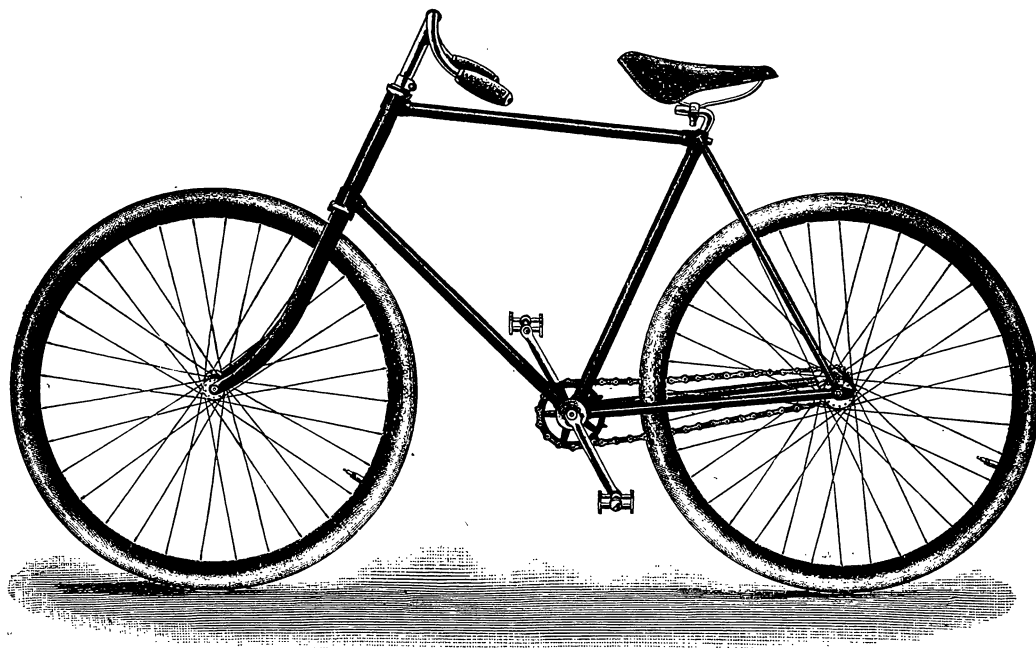
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These points will be found on the Union for '94. The strongest Bicycle of its weight ever built.

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UNION CYCLE MFG. CO.,

Branches, Philadelphia and Chicago.

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Just the thing for the
HARDWARE TRADE.

HANDSOME.
TRUE.
HANDY.

PRICE LOW.

SEND FOR DESCRIPTION.

NEW HAMMERLESS DOUBLE GUN,

—MADE BY—

Forehand Arms Co.,

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Also makers of a large
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Improved Automatic Double Action,
3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

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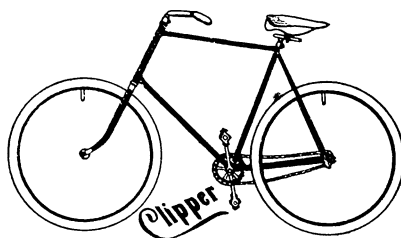
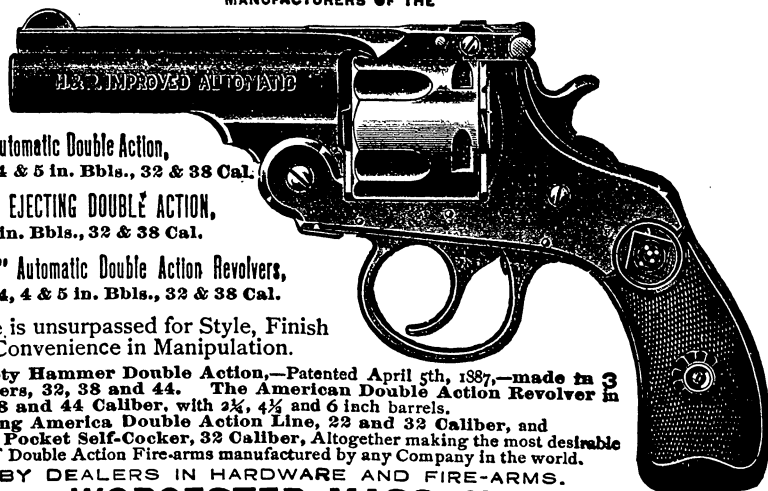
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3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

This line is unsurpassed for Style, Finish
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The Safety Hammer Double Action,—Patented April 5th, 1887,—made in 3
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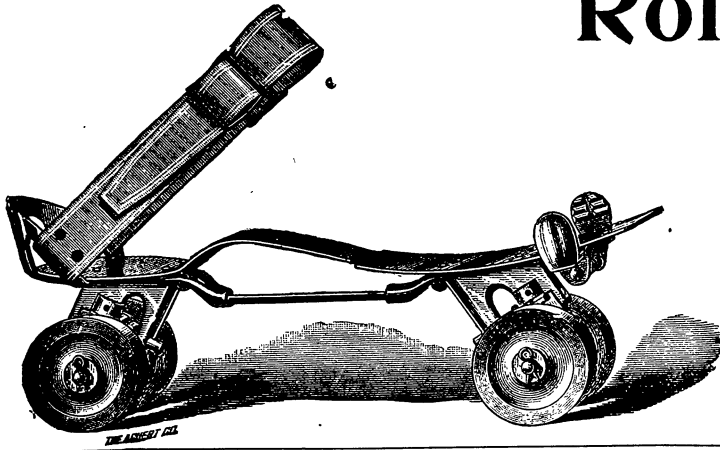
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are built to please the dealer and
rider.

Are you in the bicycle business?
If not, you can make it pay to han-
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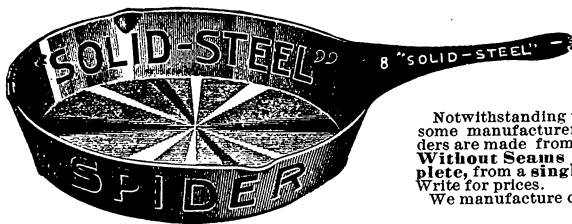
Henley's . . . Rink and Club Celebrated. . . Roller Skates.



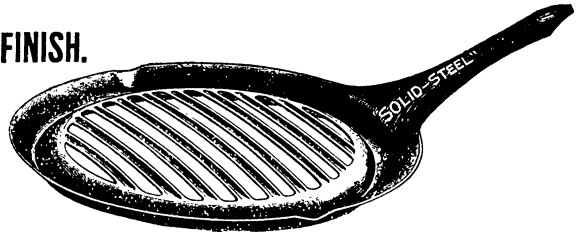
A full new and complete stock of roller skates, skate repairs and rink supplies. Address for 80-page catalogue and prices

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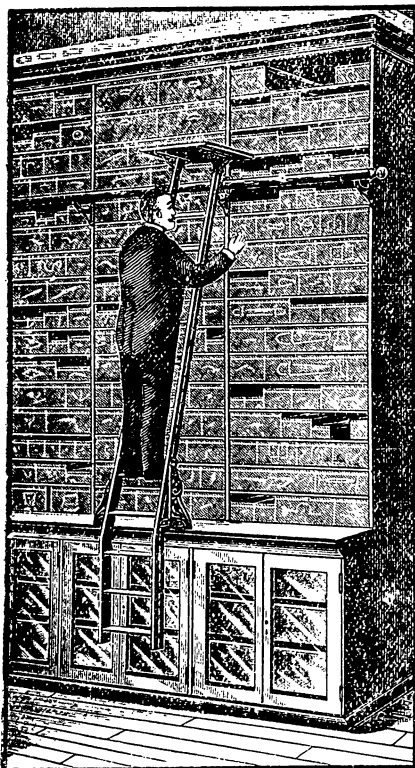


No Seams, no Rivets in "Solid-Steel" Ware.

Made without Seams or Rivets.

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We do Light and Heavy Stamping and Blanking. Also build Dies and Stamping Machinery.



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The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made. Ladders are not Suspended, but Supported from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit. Send for illustrated catalogue and prices. See this space next week for other styles.

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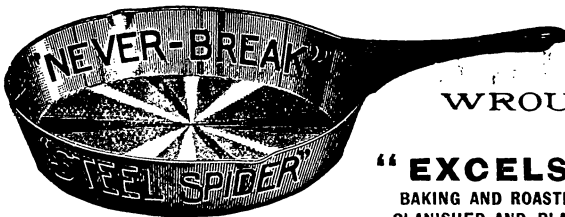
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We have half a dozen beautiful cherry wood, plate glass show cases used by us at the World's Fair which we will sell separately or together at very low prices.

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"MIRROR POLISH," the only Perfect Plain Steel Finish.

"NEVER-BREAK"

WROUGHT STEEL COOKING UTENSILS.

MIRROR POLISHED-TINNED-PORCELAINED.

"EXCELSIOR"

BAKING AND ROASTING PANS,
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BRASS, BRONZE, NICKEL UMBRELLA STANDS, CUSPIDORS, ETC., ETC., ETC.

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Light your Streets and Driveways.

The S. G. & L. CO.

Tubular Globe Street Lamp

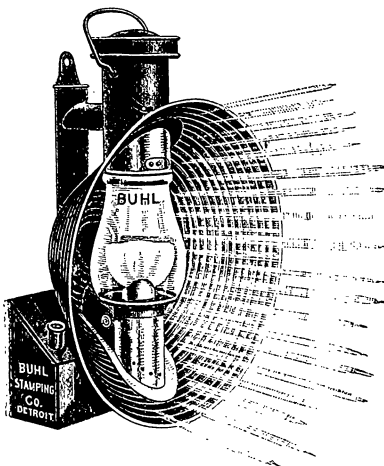
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Will not Blow Out in the Strongest Wind.
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Buhl Tubular Headlight.

IMPROVED FOR 1893-94.

The most brilliant light at least expense for Halls, Factories, Barns, Boat Houses, Traction Engines, etc.

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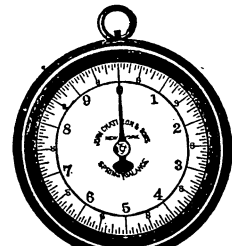
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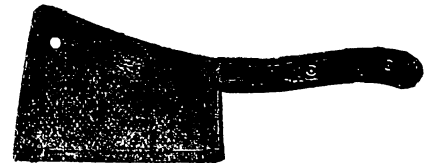
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ALWAYS IN STOCK.



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Orders solicited. Prices on application.
BURDITT & WILLIAMS,
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—SOLE AGENTS AND IMPORTERS.—



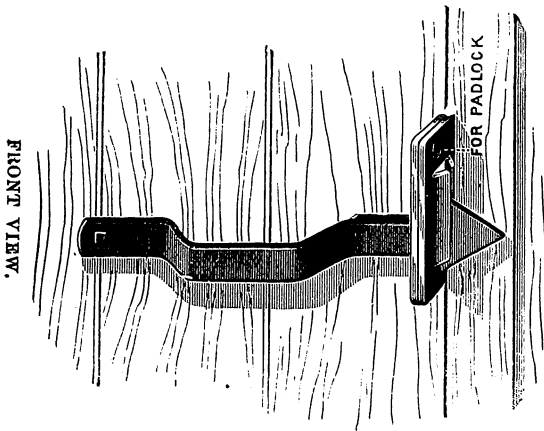
WATERPROOFED through SOLID. Light, CLEANLY, Handsome, DURABLE. Cheap as a GOOD ARTICLE can be made. ORNAMENTAL as well as USEFUL. Sold DIRECT TO THE TRADE. In this ARTISTIC age no dealer can afford to be without DECORATED FLAX FIBER WARE, bearing above trade-mark and made only by above Company.

THE CLARK MFG. CO.,

Blind Hinges, Gate Hinges, Door Butts,
And other HARDWARE SPECIALTIES
BUFFALO, N. Y.

LANE'S SLIDING DOOR LATCH.

— MADE OF STEEL. —



FRONT VIEW.

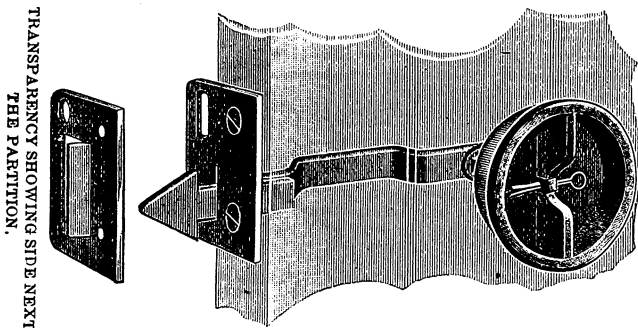
IT IS DESIGNED especially for sliding doors. It is strong, durable and practically unbreakable. It is adapted for either right or left edge of door. It may be applied to either the inside or outside of door. It is also adapted for use on double door. It has no exposed screws or bolts that can be tampered with from the outside.

1 DOZEN IN BOX. LIST, \$4.00 PER DOZEN.

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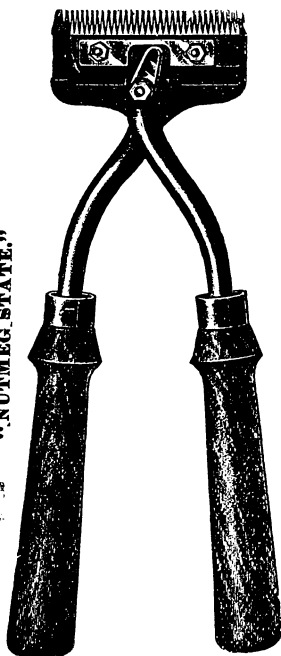
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SATISFACTORY PRICES. Standard goods. Don't fail to write when in want of Horse and Barber's Clippers, No. 20 Steel Rat Killers, Curry Combs, Metal and Wood Choker Mouse Traps, Lemon Squeezers, Baxter Pattern Wrenches. &c., &c.

AMERICAN TOOL COMPANY,
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MANUFACTURERS OF
TOOL CHESTS

Of all sizes, complete with tools, for Hardware, Toy Notion and Variety trades.
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Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application.

A Triumph in Small Bore Rifles. STEVENS' "FAVORITE" RIFLE.



Made for the 22 or 25 Rim Fire Cartridge.

WEIGHT, 4 1/4 POUNDS.

22-INCH BARREL.

LEVER ACTION LIKE SHARPS.
TAKEN APART IN TEN SECONDS.

IT IS SIMPLY IMPOSSIBLE
TO MAKE MORE
ACCURATE SHOOTING BARRELS
THAN ARE ON THIS RIFLE.

RIFLE
TAKEN APART.

No. 17. Plain Open Sights.....\$12.50
No. 18. Vernier, Open Back, and Beach Front Sights..... 17.00
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A 60 Page Catalog showing our full line of Fire Arms with TRADE PRICE LIST sent with pleasure to all dealers.

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P. O. Box 5729.

Chicopee Falls, Mass. U. S. A.

Petroleum

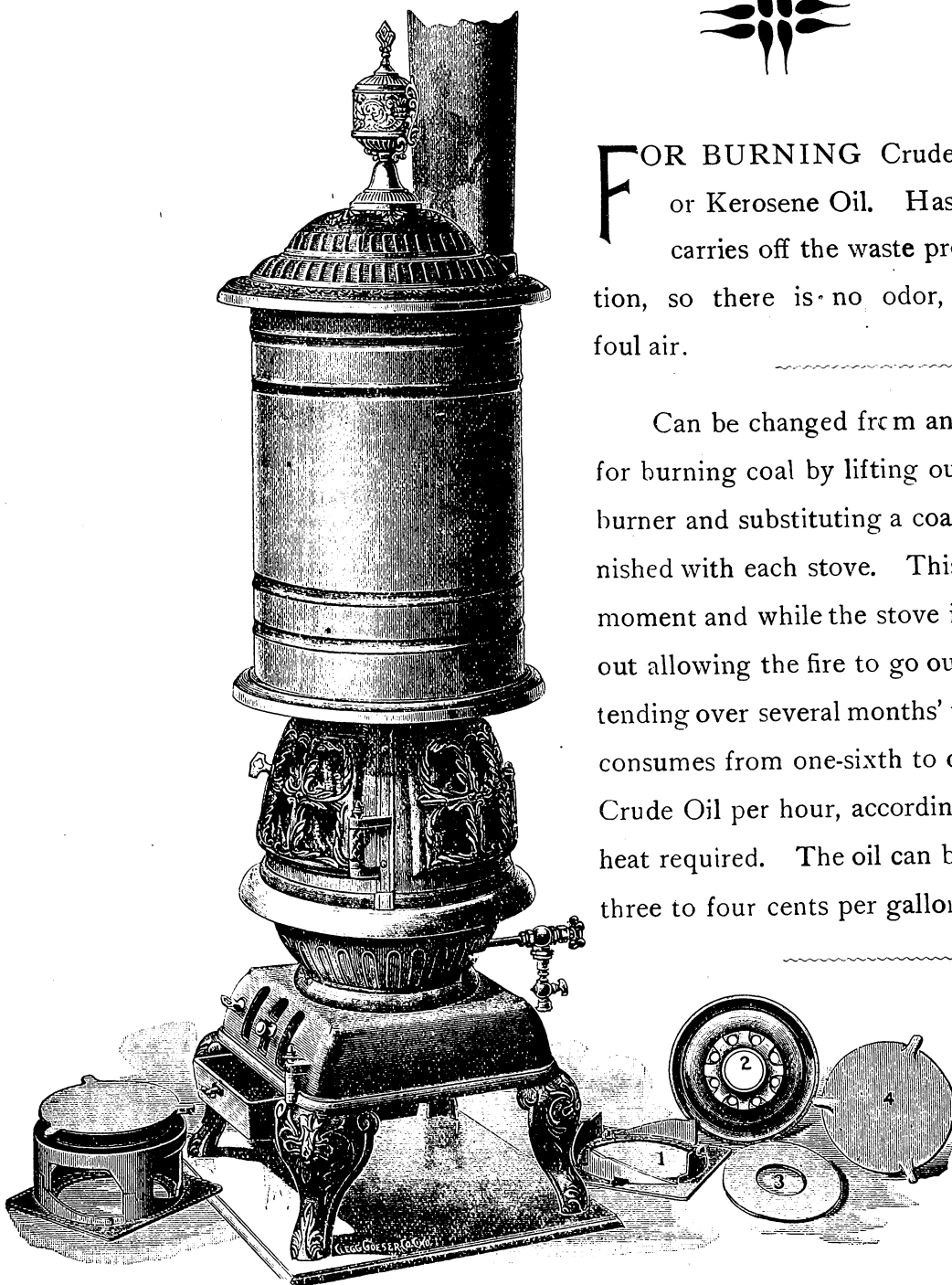
Oil Stove.

AN INTENSE HEAT,
A STEADY HEAT
AT ALL TIMES.



FOR BURNING Crude Petroleum, Torch or Kerosene Oil. Has a stove pipe which carries off the waste products of combustion, so there is no odor, no smoke and no foul air.

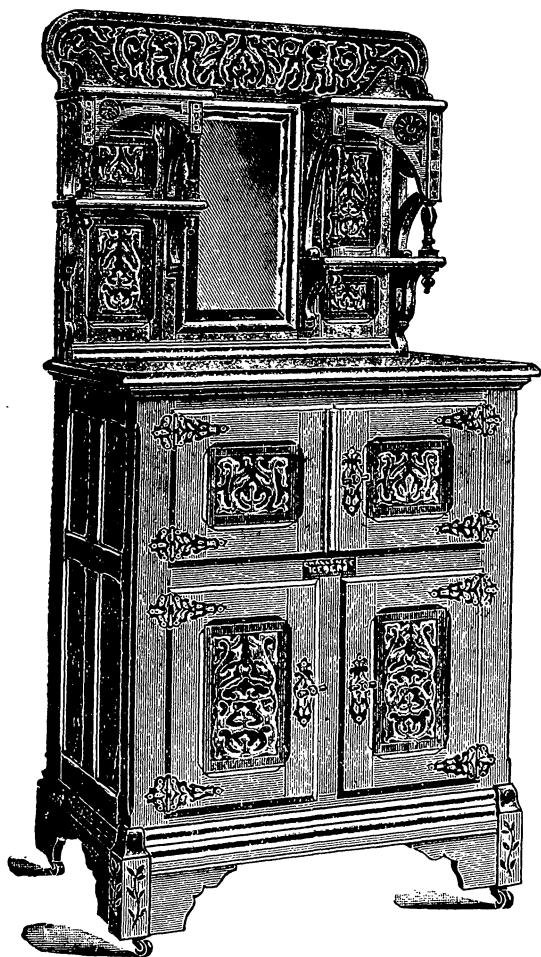
Can be changed from an oil stove to one for burning coal by lifting out the top plate of burner and substituting a coal grate which is furnished with each stove. This can be done in a moment and while the stove is red hot, and without allowing the fire to go out. Experiments extending over several months' time show the stove consumes from one-sixth to one-fourth gallon of Crude Oil per hour, according to the amount of heat required. The oil can be bought for from three to four cents per gallon.



FOR full particulars and prices, address - - -

THE FOSTER STOVE CO., IRONTON, OHIO,

.. .. Manufacturers of Cook and Heating Stoves.



BUY THE BEST. THE Challenge Iceberg Refrigerators,

MANUFACTURED BY

The Challenge Corn Planter Co.,

Grand Haven, Mich., U. S. A.

Write for our large Illustrated Catalogue for 1894.

All our goods are made of thoroughly kiln dried ash, finished in antique with shellac and coach varnish. Panels are beautifully hand carved. Trimmings are of solid bronze and are our own pattern. We use our own patent air tight locks, patent self-retaining malleable casters and floor plates, and patent drip cups. All refrigerators are filled with pure charcoal. The Challenge Iceberg Refrigerators are the best made for preserving all articles stored therein pure and sweet, as there is always a circulation of pure, dry, cold air. Refrigerators having water coolers are provided with bronze faucet and cup holder. All Sideboards have a fine beveled French plate mirror. We manufacture Refrigerators of all sizes from the ordinary Ice Chest to the largest sizes for grocers' and butchers' use, including the most elegant line of Dining Room Sideboard Refrigerators ever put on the market.

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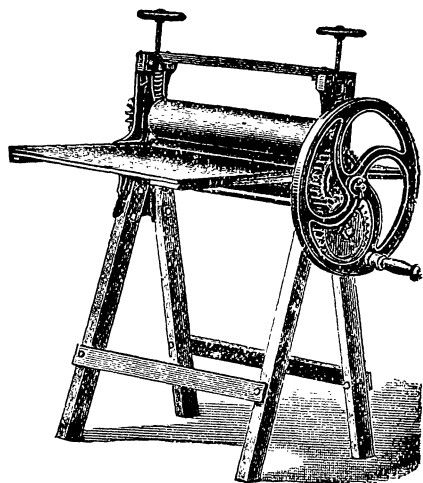
Lee-Clarke-Andresen Hardware Co., Omaha, Neb.
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The Family Mangle.

WARRANTED TO DO
Better Work than Hand-Work.

SAVES all the fuel,
two-thirds the work.
Keeps the linen whiter.

We Guarantee Every Machine.

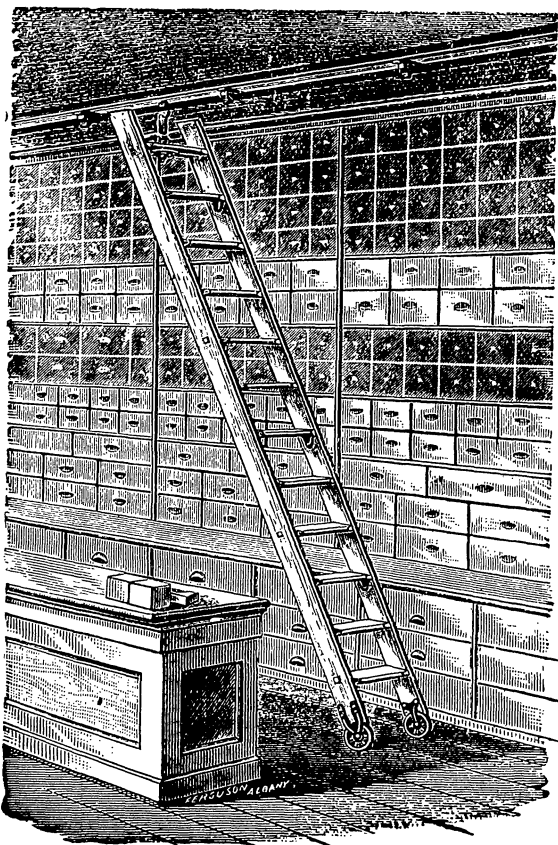


Send for descriptive circular to
S. C. Johnson, Racine, Wis.
Agents Wanted.

PHILLIPS SCREENS

Are Reliable.

THE "NOISELESS" STORE LADDER.

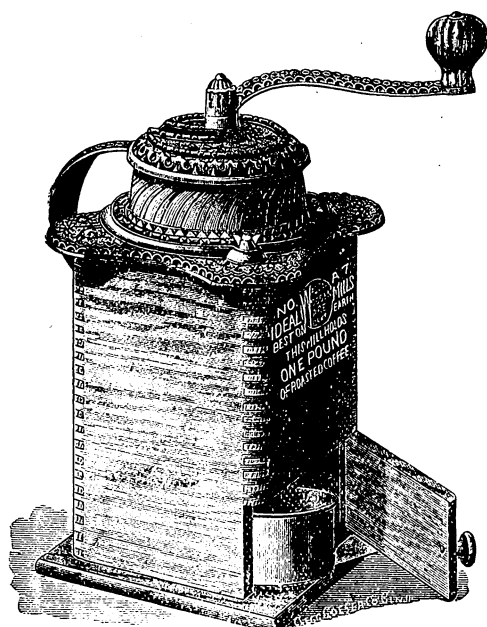


The latest and best. Perfectly noiseless. Neat in appearance.

Manufactured by

M. CROISSANT,

ALBANY, N. Y.

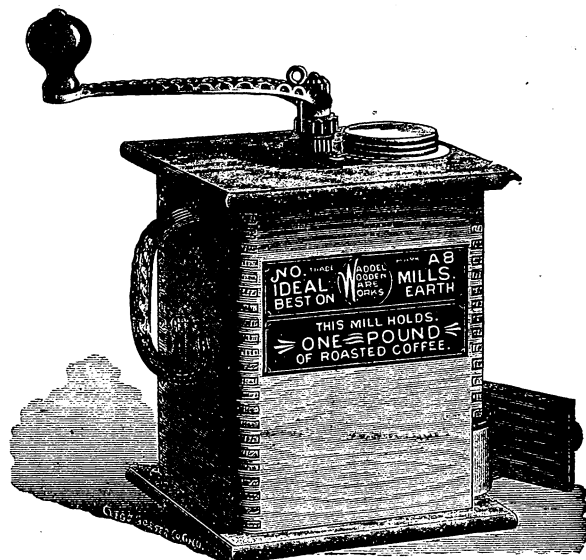


"Ideal"

Coffee Mills are fast becoming the Popular Sellers.

WHY ?

Because they Grind faster, are newer and have a better reputation. We can fit you in size and price.



WADDELL WOODEN WARE WORKS, Wholesale Manufacturers,
COFFEE MILLS, MONEY DRAWERS, ANIMAL TRAPS, &c., **GREENFIELD, OHIO.**

They're All the Best (?)



But why don't they sell like the Hunter? The reason is obvious; none of them have stood the test like this, the Pioneer of them all and which to-day still stands at the head. Send in your specifications now for

1894.

The FRED J. MEYERS MFG. CO.,
COVINGTON, KY. F. J. MATTISON, Eastern Agent,
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The Sun Manufacturing Co.

Successors to the Jno. M. Waddell Mfg. Co.,

ARE SOLE OWNERS AND MANUFACTURERS OF

Waddell's Improved Coffee Mills,
Cathedral Gong Money Drawer and Surprise Rat Traps.
Beware of Infringements.—We will protect our Patents.

"THE 'SUN' ONLY, SHINES FOR ALL."

A New Name, A New Reputation,

A New Line of Coffee Mills
That under the SUN Brand shine as leaders.

RAPID GRINDERS that will STAND THE WEAR.
STEEL ALLOY BUHRS,

A metal of recent discovery for this purpose used solely and only by the SUN. Warranted to outwear, outgrind and outsell any Coffee Mill ever put on the market.

We Challenge a Competing Test for Rapid Grinding and Wearing Surface.

Our New Line bears the Sun Trade Mark and is labeled Steel Alloy Buhrs.

Write for Our Catalogue and New Prices.

Order a Sample Mill.

THE SUN MANUFACTURING CO.,
Greenfield, - Ohio, U. S. A.,

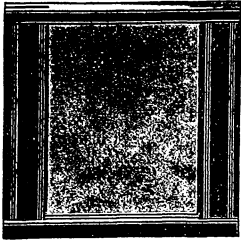
MANUFACTURERS OF

Cash Registers, Money Drawers, Coffee Mills and Wooden Ware Specialties.

Phillips Window Screens.

They are Symmetrical, Plain, Neat, Strong, Smooth, Clean-Cut, and Well made from Good Materials.

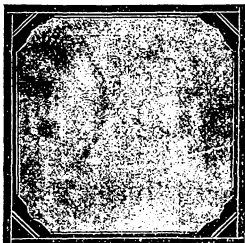
Hard Wood or Soft Wood, Oiled or Stained Imitation, Walnut or Cherry. With or without Springs.



If the kind you have been buying has been weak, fuzzy, raw-edged and looks as if your wife had made it with an axe, **REFORM!** Buy something decent! It will pay you better in the long run and life will be better worth living.

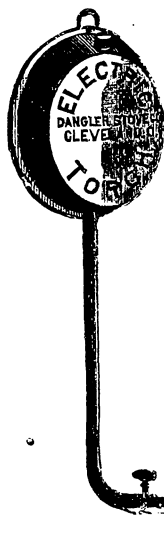
When you sell a man Phillips Screens, instead of curses you have the thanks of your customer, as well as the calm, satisfied feeling of one who has done a good deed. Then you don't have to watch the door all the time, expecting he will bring them back broken and call you a fool.

If a customer buys an unsatisfactory screen or other article, **HE BLAMES YOU** for it and after a while goes elsewhere. We have always found it good policy to please the man who finally buys and uses screens. If you haven't our catalogue send for it!



A. J. Phillips & Co.,

OFFICE, FACTORY and WAREHOUSES, - - FENTON, MICHIGAN.



Dangler
Electric
Torches
FOR
GASOLINE
OR
OIL.
14 JETS OF LIGHT
3 to 6
INCHES
LONG.

FOR lighting manufacturing establishments, such as Rolling Mills, Foundries, Machine Shops, Engine Rooms, &c., &c., with a convenient, portable, brilliant, steady light, and by cheaper means than by Coal Gas

SOLE MANUFACTURERS,

The Dangler Stove & Mfg. Co.,
Cleveland, Ohio.

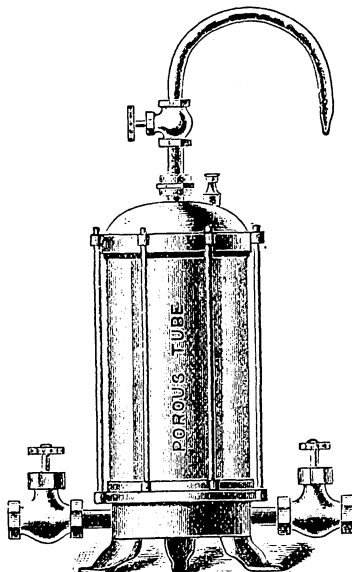
WEATHER STRIPS.

The best and only Automatic Weather Strip on the market. No rubber to rot. No stays on door to break hinges. We have the best and only practical Weather Strip. Sample 50c. Write

J. H. THOMAS & CO.,
PIQUA, O.

CUT THIS OUT

And do not forget that the **DARLING SELF-CLEANING FILTER** is the best in the world.



It can be cleaned while you are unscrewing the tops of other filters. It has the best cleaner ever invented. It has a porous tube half an inch thick, made especially for this Filter, so that the water is as sparkling as diamonds. After a year's trial in Cleveland it has the best references ever given to a Filter.

We want a first class Hardware Dealer in every city and town to handle our Filters, and to those applying first, if satisfactory, we will give the agency.

DARLING FILTER CO., 26 1/2 South Water St.,
CLEVELAND, O.

CLOTHES WRINGERS. COLBY WRINGER CO.,

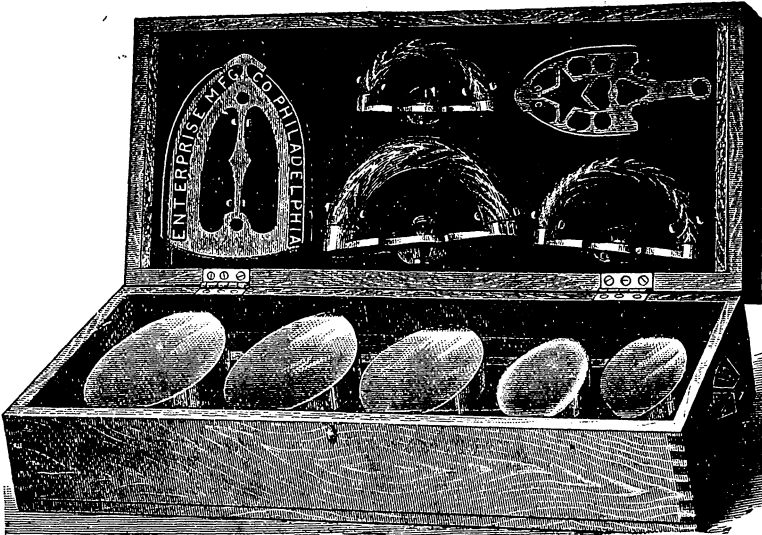
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HAVE YOU Our Price-List?

FAMILY OUTFIT OF SAD IRONS.**SPECIALTIES.**

Meat Choppers,
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Mole Traps,
Mrs. Pott's Sad Irons,
Sad Iron Heaters,
Shoe Stand & Lasts,
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Family Outfit of
Sad Irons,
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Tobacco Cutters,
Vegetable Slicers
Sausage Stuffing
Attachments,
Bone, Shell and
Corn Mills,
Lawn Mowers,
Fruit, Wine and
Jelly Presses.

Send for Catalogue,
FREE.

**SPECIALTIES.**

Coffee Mills,
Beef Shavers,
Measuring Faucets,
Cheese Knives,
Barrel Jack, Truck
and Stand,
Molasses Gates,
Bung-Hole Borers,
Cherry Stoners,
Cork Pressers,
Dried Fruit and
Sugar Augers,
Cork Pullers,
Bullfrog Door Weight,
Flag Holders,
Ice Shredders,
Barn Door Bolts,
Meat Hooks,
&c., &c.

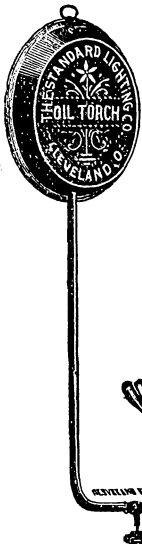
For Sale by the
Hardware Trade.

A USEFUL PRESENT.

THE ENTERPRISE MFG. CO. OF PA., Third and Dauphin Streets, Philadelphia
Branch Office and Warehouse with J. C. McCARTY & Co., 97 Chambers Street, New York.

LIGHT YOUR DARK SHOPS CHEAPLY.

Give your men plenty of Light and they will do
double work.

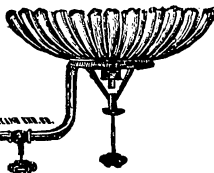


The Wall Torch has been used for several years as a means of illumination in Mills, Foundries, Machine and Car Shops, Tunnels, Street Stands, Band Stands, Smith Shops, etc.

While there are many cheap, inferior torches made which injure the sale of a good article, and condemn the Torch in general, our "Incandescent" Wall Torches are recognized as the best, and are now in use in the largest manufacturing establishments in the country giving **PERFECT SATISFACTION**, as is evidenced by the **DUPLICATE ORDERS** we receive from year to year.

They burn 150° Coal Oil, or 74° Naphtha, requiring a different burner for each.

In ordering be careful to state which is desired.



Price, for Single Torch, complete, \$2 each.

SPECIAL PRICE QUOTED FOR QUANTITIES.

THE STANDARD LIGHTING CO.,

100 to 118 Perkins Ave., - - - Cleveland, Ohio.



WM. KROGSRUD,
Engraver and Die Sinker,
61 Fulton St., N. Y.
Manufacturer of

STEEL STAMPS
For Every Purpose.

Steel Letters and Figures,
Burning Brands, Stencils,
&c. Send for Illustrated
Catalogue.



3

NICKLE, Silver and Bronze Metallic
Figures and Letters, Sizes 1/16 to 3/16.
Pattern Letters, Steel Stamps, Brands,
Dies &c. Send for Reduced Price List.
We make a specialty of the Hardware Trade.
A. A. WHITE & CO., Providence, R.I.

CHAS. W. HOEFIG,
ENGRAVER AND DIE SINKER,
52 FULTON ST., - N. Y.
STEEL STAMPS,
BRASS DIES, BURNING BRANDS, &c.
Designs on Steel Finely Executed.

—: OUR :—

**PURE ALUMINUM COOK-
ING UTENSILS**

Meeting with such universal appreciation, we think it to our interest to appoint **ONE** responsible firm of Hardware Merchants in **EACH** town and city as our sole agents.

ILLINOIS PURE ALUMINUM CO.,
LEMONT, ILLINOIS.

Manufacturers of Sheets, Medals, Utensils.

THOMAS CLARKE
HARDWARE AND GENERAL AGENT.

(FIRST-CLASS REFERENCES.)

60 PRINCE WILLIAM ST., ST. JOHN,
NEW BRUNSWICK.

Reliable Torches are
what you want.



Made either for Oil or
Gasoline.



These Torches are particularly adapted for use in factories, foundries, machine shops, rolling mills, blacksmith shops, warehouses, &c. They make a strong white light, are free from smoke and are not affected by wind or rain. They are convenient and portable. These Torches can be run at an expense of about one-half cent to one cent per hour, burning a bright, steady light which is ten times greater than the light of an ordinary gas burner.

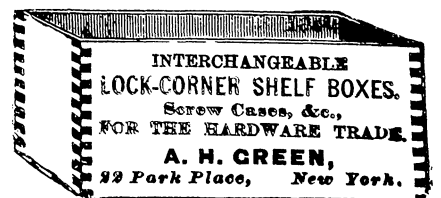
Write us for prices. A liberal discount given to the trade.
Manufactured by
THE SCHNEIDER & TRENKAMP CO.,
Nos. 479 to 497 Case Ave., Cleveland, Ohio.

American Stamping Co.,

Manufacturers of

**All Kinds of Tinware and Sheet
Metal Goods.**

N. Y. Office and Salesroom, 104 & 106 John St.
Factory, 103 to 119 N 3d St., Brooklyn, E. D., N. Y.



Stone
Ware
Lined

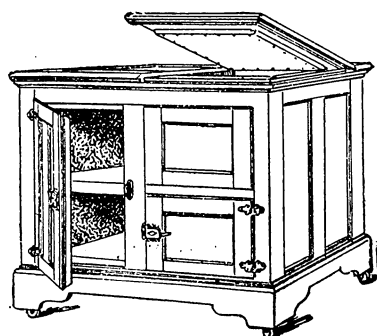
Refrigerators

SEAMLESS vitrified and glazed earthenware Provision Compartments. Practically indestructible; won't sweat, because of Perfect Dry Air Circulation. Liberally filled with the best Mineral Wool, and first-class in every particular. Perfect cleanliness. No foul odors. Indurated Fiber Ice Racks that will not leak.

Quality Same, But Prices Lower.

WRITE FOR CATALOGUE AND DISCOUNTS.

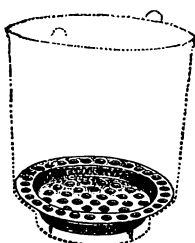
Monroe Refrigerator Co., = = = Lockland, Ohio.



SAFETY KETTLE BOTTOM.

Made from **STEEL.**

Prevents meats and vegetables from burning while cooking. Can be used for various purposes, either as Steamer, Broiler, Toaster, etc.



Cannot be Broken.

burning while cooking. Can be used Broiler, Toaster, etc.

PATENT APPLIED FOR.

FOR PARTICULARS ADDRESS,

DIAMOND HARDWARE CO., 620 ATLANTIC AVE., BOSTON, MASS.

No. 4 ALL RATTAN BROOM.

Made for Switch, Snow, Yard, and all purposes to which an All Rattan Broom is especially adapted. It has been thoroughly tested, and our patent fastening is conceded to be the best, most convenient, and holds the rattan more firmly and in better shape than any other ever introduced. A trial will insure its continued use. We make a specialty of

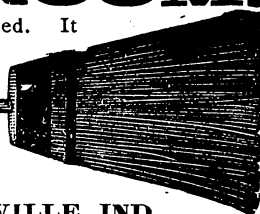
BROOMS and BRUSHES

FOR

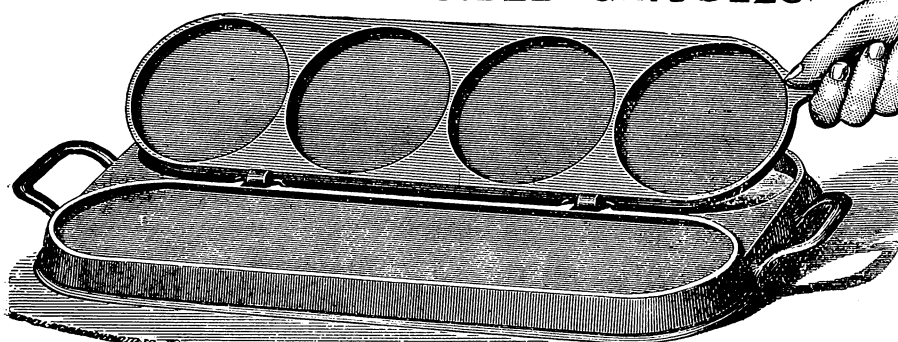
RAILROADS, SHOPS, WAREHOUSES, STREET, STABLE, BLOOM, CHILL, CASTING, AND MOULDING PURPOSES. Write

JOSEPH LAY & CO.,

RIDGEVILLE, IND.



PATENT REVERSIBLE GRIDDLES.

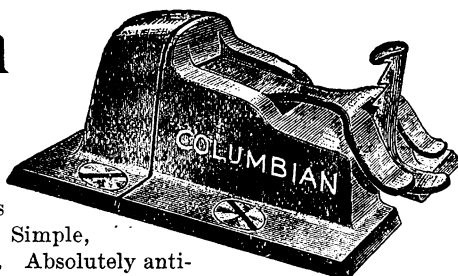


WANTED IN EVERY HOUSEHOLD. SIZES, 3 & 4 Cakes.
THE STUART & PETERSON CO., - Burlington, N. J., U. S. A

Columbian

Sash

Locks three ways with one motion. Simple, strong and durable. Absolutely anti-rattle and burglar proof. Sample by mail, 35c.

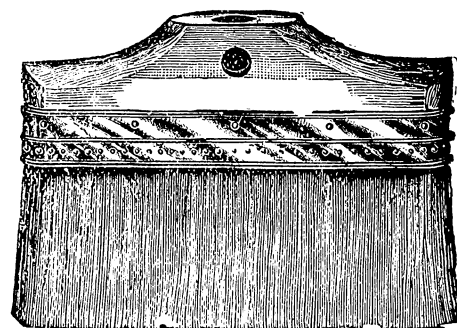


Lock.

COLUMBIAN SASH & DOOR LOCK CO.,
WAUSEON OHIO.

BRUSHES

FOR THE



Hardware Trade,
Whitewash, Horse, Paint, Window, Shoe,

And Every Variety of Brushes and

Wire Goods.

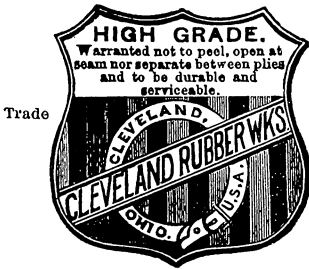
Close prices and prompt shipments. Get samples and catalogue for the asking.

Cincinnati Mfg. Co., Cincinnati, O.

"SHUT DOWN! What's the Matter?"

"BELT BROKE AGAIN!"

"See here, Mr. Foreman, if you don't have fewer stoppages I'll—"
 "Stop, Mr. Proprietor, the fault is yours. Quit buying belts that crack, peel, open between plies, stretch and break, and I'll give you a smooth run. You think it economy to buy cheap belts from Worthless & Co. Why! the time lost and trouble and annoyance caused by shut-downs would pay the difference between good and bad belts ten times over. Why don't you buy Cleveland's 'Shield High Grade,' sold by Reliable & Co.? It has an established reputation, has been thoroughly tested, and is in use in all the large mills and elevators here. You take no chances on it. Besides, a strong warrantee is indelibly branded upon it, such as no manufacturer would dare put on a poor belt. You remember that threshing machine man, whose engine we repaired, said he had a Cleveland High Grade Belt in use over five years, and if it will stand such severe work, it certainly will ours."



Trade

Mark.

LABEL INDELIBLY STAMPED ON EVERY 30 FEET OF BELT.

We are the only manufacturers who indelibly stamp a warrantee on each and every belt (see copy of label) and it remains as long as the belt lasts; and who give a written guarantee (see fac-simile). Our threshing machine belts have made a wonderful record, and our endless belts have given splendid service, the splice being as strong as the solid part of the belt. Suction Hose for Portable Engines and all other purposes.

We Want Your Trade.
 Send for 60-page Catalog.
 Write for Prices and Samples.

CLEVELAND RUBBER WORKS
 OF THE MECHANICAL RUBBER CO., CLEVELAND, OHIO.

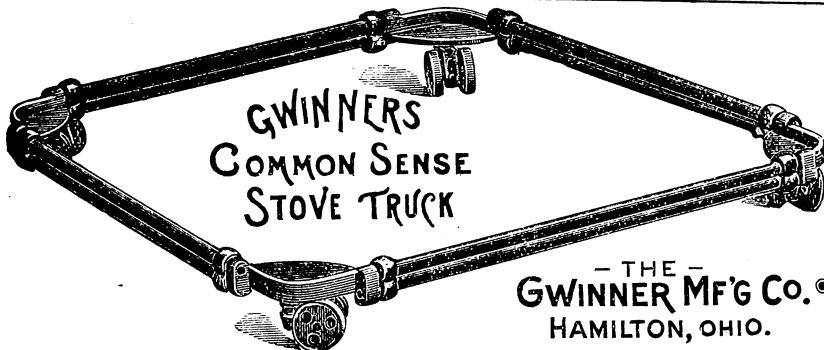
GUARANTEE.

We Guarantee our "Shield High Grade" Belt to be made of best long staple, 30 & 32-oz. cotton duck; To be the most durable, because it is made of best materials, by special machinery; To be the best selling belt, because it has the best reputation, a cleaner record of long service, and because its warrantee is stronger, bolder, broader than any other, and is irrevocable, protecting both dealer and consumer. We further guarantee that, should any belt, under fair and reasonable service, fail or give out from any defect in material or manufacture, to replace same free of charge, on return to us.

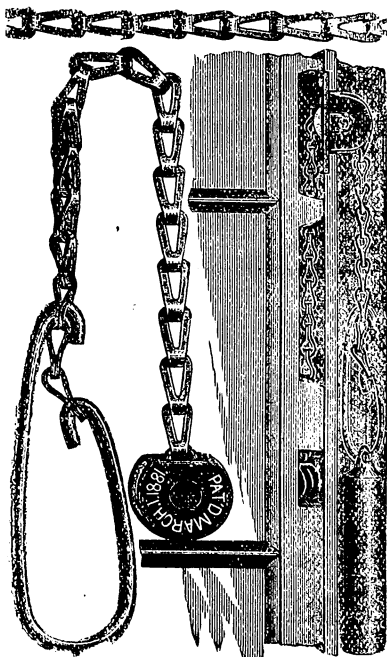
Witness our hand and seal.

Cleveland Rubber Works

Of the Mechanical Rubber Co.



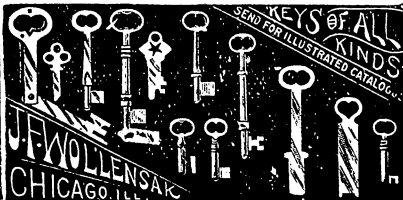
THE SMITH & EGGE MFG. CO.,
 BRIDGEPORT, CONN.



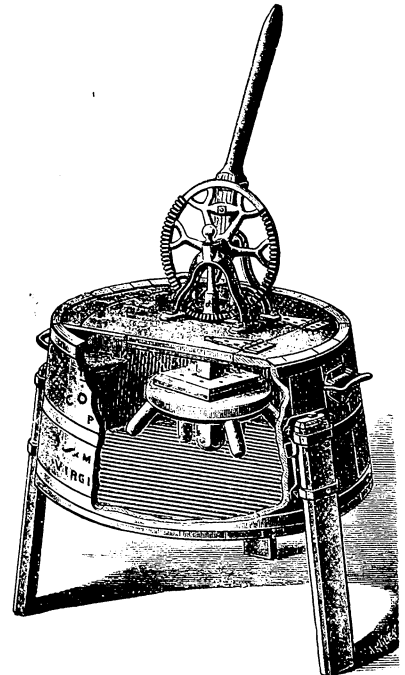
THE GIANT PADLOCK.
 Centennial Award. "Superior In Every Respect."
 This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

THE GIANT METAL SASH CHAIN

is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."



Columbia Washing Machine.



1. The Columbia is made of the finest VIRGINIA WHITE CEDAR and will last a lifetime.
2. It has EXTRA HEAVY CASTINGS and HOOPS, and is the ONLY machine on the market with ALL HOOPS, CASTINGS and TRIMMINGS GALVANIZED. It will NOT stain the clothes.
3. The BOTTOM and SIDES are corrugated on the inside of the washer ONLY.
4. The bottom of the Columbia is in the LARGE END, thus preventing clothes from WEDGING. Write for prices.

RICHMOND CEDAR WORKS,
 RICHMOND, VA.



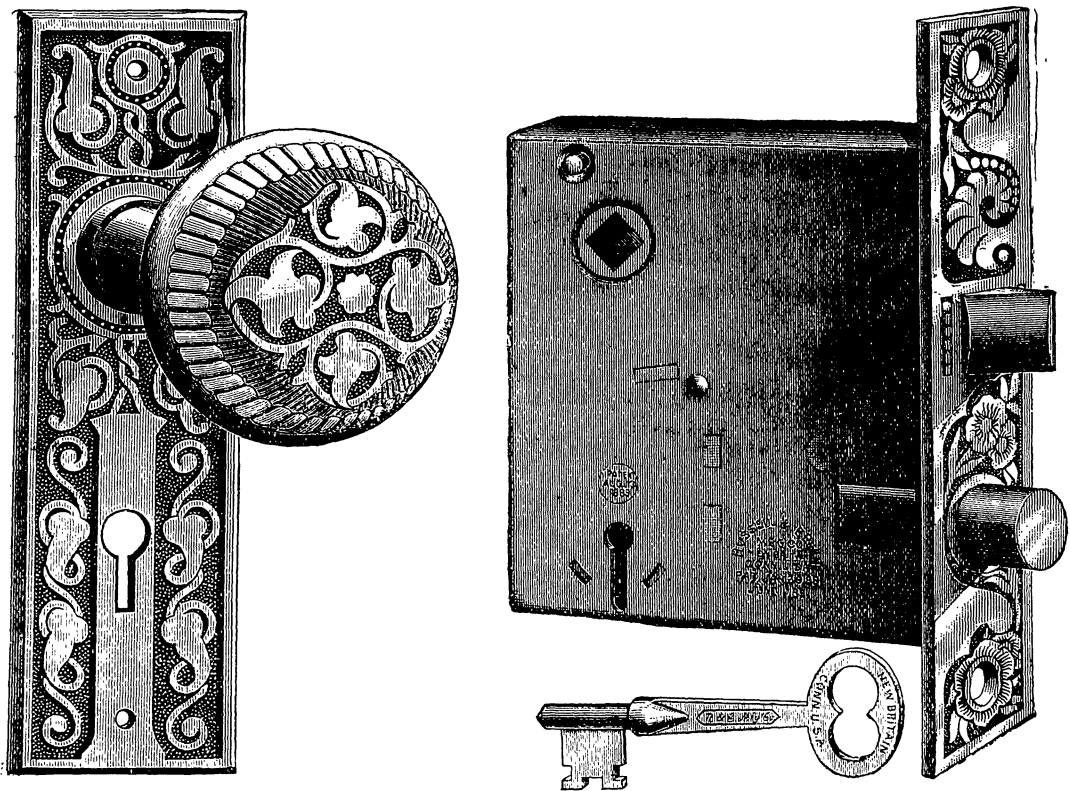
TEMPORA MUTANTUR ET NOS MUTAMUR IN ILLIS.

WROUGHT STEEL DOOR LOCKS.

Wrought Steel Cases.

Wrought Steel Fronts.

Wrought Steel Bolts.



THIS THREE-QUARTER SIZE ILLUSTRATION REPRESENTS FOLLOWING SETS.

Bronze Metal Front Lock, No. 7729,	Bronze Metal Knob, No. 985,	Escutcheons, No. 538	1-2.
" Plated " " " 7726,	" " " 985,	" " 538	1-2.
	" Plated " " 7885,	" " 7538	1-2.

Wrought Steel Springs.

Wrought Steel Tumblers.

Wrought Steel Keys.

RUSSELL & ERWIN M'F'G CO.,

Sole Manufacturers,

NEW BRITAIN, CONN.

NEW YORK.

PHILADELPHIA,

BALTIMORE.

LONDON.

READING Hardware Company

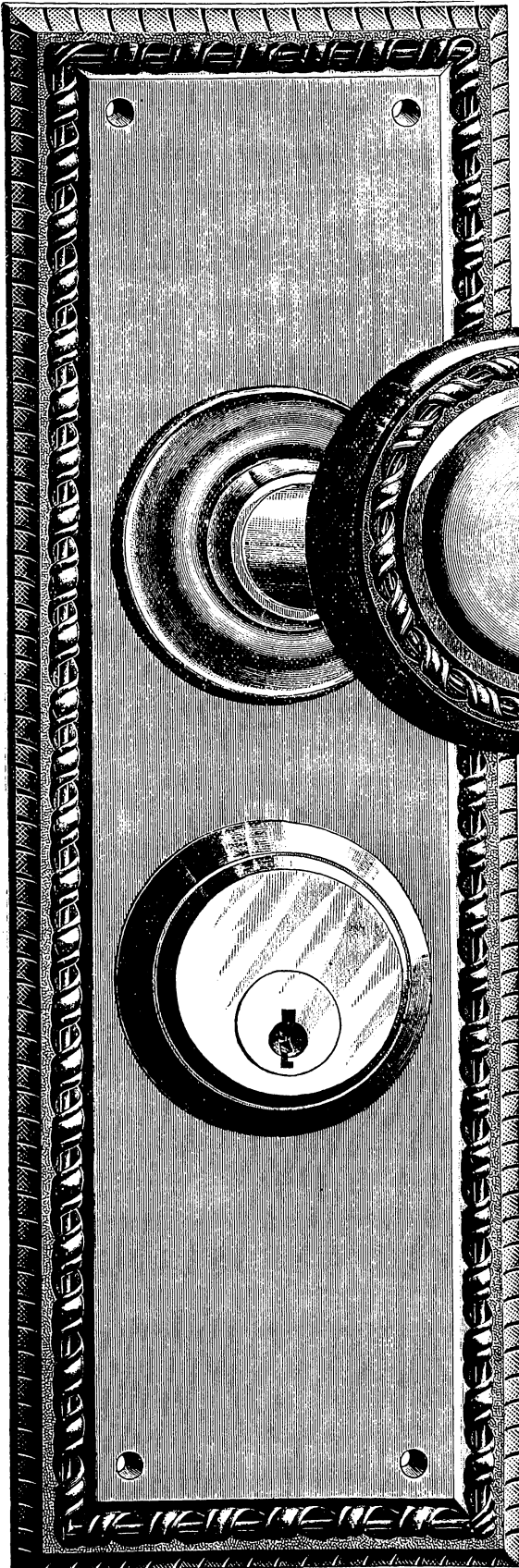
Manufacturers of

Fine Locks

AND

BUILDERS' HARDWARE

OF ALL KINDS.



Artistic
Bronze Goods.

THE BEST AND SAFEST:

“VASSAR” CYLINDER LOCK.

Factories, - READING, PA.

Warehouses:

New York,
81 Reade Street.

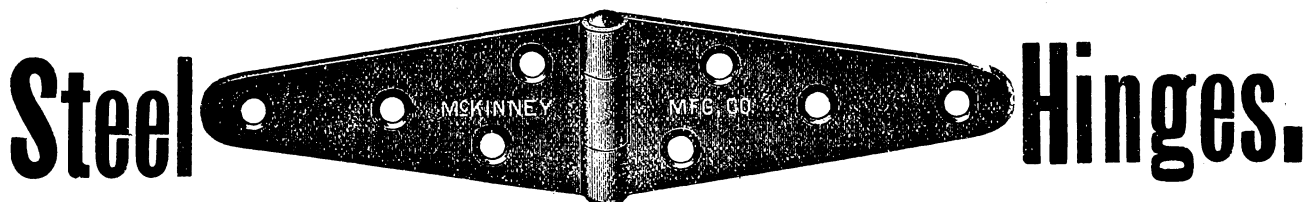
Philadelphia,
514 Commerce Street.

Chicago, 73 Wabash Avenue.

WE CLAIM

That one pair of our Celebrated Steel Hinges will outwear two pair of the Flimsy Invention now being forced upon the attention of the trade.

McKINNEY MFG. CO., ALLEGHENY, PA.

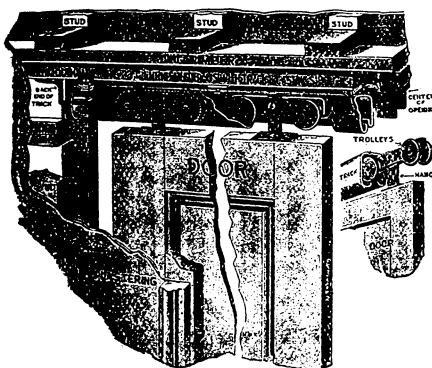


Steel

Hinges.

SEND FOR LIST.

"NONE BETTER."



PARLOR DOOR HANGERS

The adjustment is in the Track and not in the Hanger, as in other fixtures. Track can be taken out of Pocket and replaced without defacing walls after house is finished.

HIGHEST AWARD
AT WORLD'S FAIR 1893.

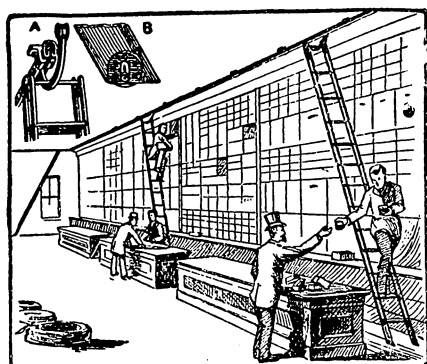
— ON : —

Parlor, Barn and Fire Door Hangers.

SEND FOR CATALOGUE.

COBURN TROLLEY TRACK MFG. CO.,
HOLYOKE, MASS.

We make four styles of Rolling Ladders to reach shelving of any height.



P. & F. CORBIN,

New Britain, Conn.

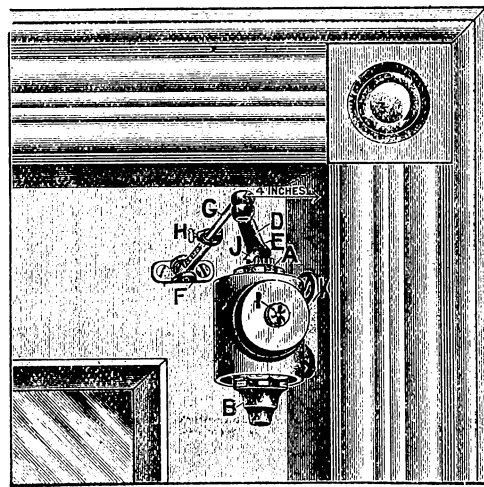
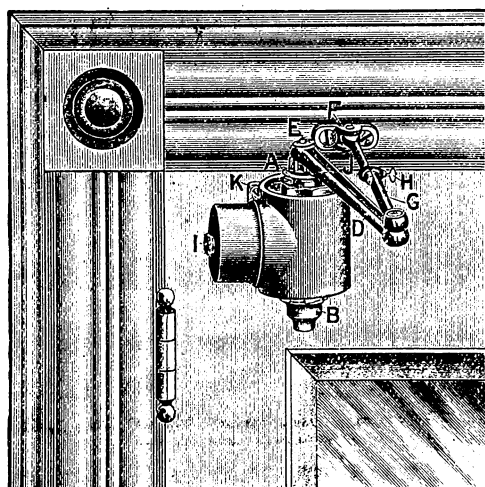
New York.

Philadelphia.

Chicago.

—) MANUFACTURERS OF (—

Easily
Adjusted
and Adapted
for all
Requirements.

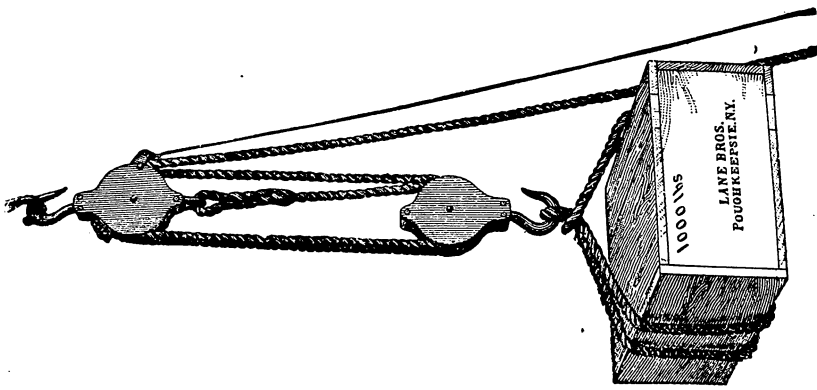


Looks Well,
Acts Well,
Wears Well.

LIQUID DOOR CHECKS AND SPRINGS,

Fine Builders' Hardware. Wood and Machine Screws.

Catalogues and Prices Furnished on Application.



LANE'S SELF-LOCKING TACKLEBLOCKS,

Anti-Friction Steel Bushings,

Holds the load at any point, and always sure.

SEND FOR CIRCULAR.

For sale by the Hardware trade.

—MANUFACTURED BY—

LANE BROS.
POUGHKEEPSIE, N. Y.

He had in his possession 55 skeleton keys
which the police claim would open any door.
—Chicago Tribune.

You are selling that kind of a lock every day and
your customers think you are selling the best the market affords.

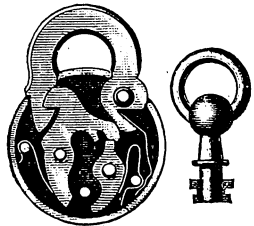
ARE YOU SELLING the best the market affords?

The Craig Locks are guaranteed Sneak Thief Proof.

Send for Catalogue.

KEYLESS LOCK CO., I. A. 197 So. Canal St., Chicago, Ill.

PATENT PERFECTION PADLOCK.



Eight Tumblers, Key Turning Both Ways.

Sizes, $\frac{1}{4}$ inch to $2\frac{1}{2}$ inches, of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, $\frac{1}{2}$ and $\frac{3}{4}$ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world.

Adopted by the United States Treasury for bonded warehouses.

AMES SWORD CO., Chicopee, Mass.

Send for Price-Lists and Circulars.



SALES OF THE

"Champion" 6-Lever Padlock

Never before Equalled what they attained in 1892.

PRICE TALKS. QUALITY TALKS.

Sold by best Jobbers everywhere.

Every Dealer should have on File our Catalogue No. 11.

MILLER LOCK CO.,

4515 Tacony St., - PHILADELPHIA, PA.

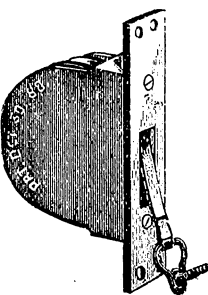
DOES IT PAY?

To buy an inferior article, which your
trade condemns, when you can get

THE CALDWELL SASH BALANCE.

The best material, right principle and
care in making and testing have made
it the **LEADER** for five years. Write to

CALDWELL MFG. CO., Rochester, N. Y.



THE WILLIAMS PRINTING CO.,

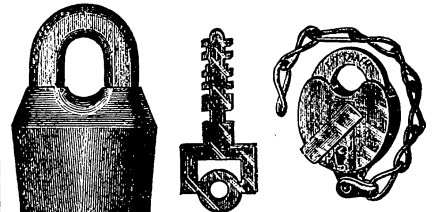
Commercial Printers AND Binders.

ESTIMATES FURNISHED FOR ALL CLASSES OF WORK.

96, 98, 100 and 102 READE STREET, - NEW YORK.

O

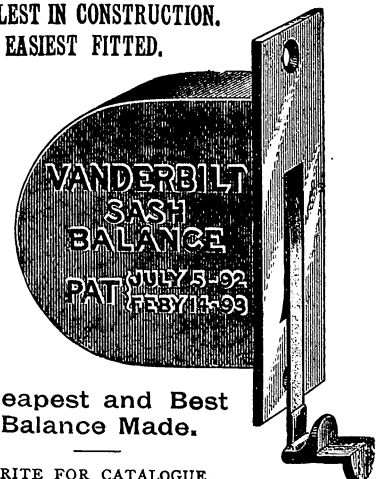
ESTABLISHED 1879.
KEYSTONE LOCK WORKS,
E. T. FRAM, Lancaster, Pa., U. S. A.



Originators, designers, patentees and manufacturers of all the leading popular styles of **PADLOCKS**, Key-Locking Scandinavian with our patent Inter-Locking Tumblers; the only reliable lock of this style ever made. **SELF-LOCKING** Scandinavian of the highest type of perfection. Dust Proof Railroad, Freight Car and Switch Padlocks. Brass, Bronze, Steel and Malleable Iron Padlocks for all purposes and in all finishes. 131 different kinds. Write for our new 100-page catalogue.

SURPLISS, DUNN & ALDER, General Agents,
97 Chambers St., NEW YORK.

**SIMPLEST IN CONSTRUCTION.
EASIEST FITTED.**

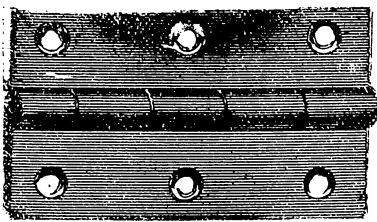


**Cheapest and Best
Balance Made.**

WRITE FOR CATALOGUE.

The Vanderbilt Sash Balance Co.,
CANANDAIGUA, N. Y.
General Agents, Harmon & Dixon, 118 Chambers St.
New York.

C. H. WOLFF,
177 William St., N. Y.
**STEEL ALPHABETS
STEEL NAME STAMPS
BURNING BRANDS
STENCIL DIES.**
Send for Catalogue.



Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

Nos. 16 & 18 Chambers Street, New York,
MANUFACTURERS OF

**BRASS, GALVANIZED & SHIP CHANDLERY
HARDWARE.**

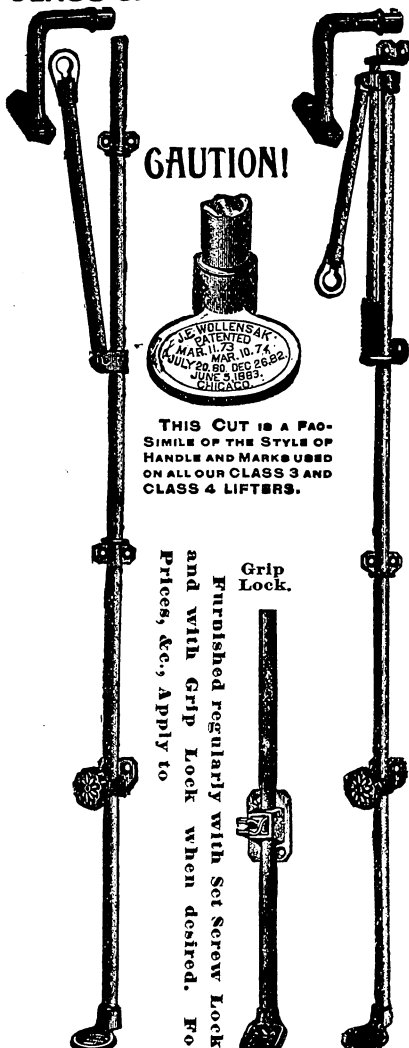
Transom...Lifters

OLD RELIABLE

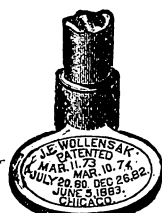
J. F. WOLLENSAK'S PATENT.

CLASS 3.

CLASS 4



CAUTION!

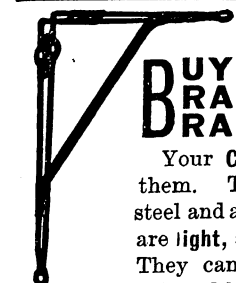


THIS CUT IS A FA-
SIMILE OF THE STYLE OF
HANDLE AND MARKS USED
ON ALL OUR CLASS 3 AND
CLASS 4 LIFTERS.

Furnished regularly with Set Screw Lock,
and with Grip Lock when desired. For
prices, &c., apply to

Grip
Lock.

J. F. WOLLENSAK, - CHICAGO, ILL.



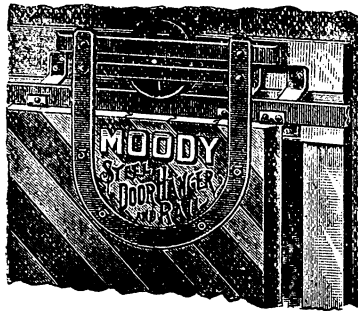
PAT. NOV. 8,
1892.

BUY BRADLEY BRACKETS!!!

Your Customers will like
them. They are made of
steel and are not brittle. They
are light, strong and artistic.
They can be put up with
nail and hammer. Write for
prices.

ATLAS MFG. CO.,
New Haven, - - Conn.

VICTOR MFG. CO., Newburyport, Mass. STEEL RAIL.



Showing one-half set of hangers attached
to door.



The Only Bracing Bracket Made.

HANGERS.	PRICE-LIST.	Per Doz. prs.
No. 5, to run 6 feet, 3 1/4 in. wheel,	-	\$10.00
No. 6, to run 10 feet, 4 1/4 in. wheel,	-	15.00
No. 7, to run 15 feet, 5 1/4 in. wheel,	-	23.00
RAIL, per foot.....		8 1/4 cents.



Patented
May 13, 1890.

Per Doz. pr.
No. 1 5 foot run \$15.00
" 1 1/2 " 8 " 18.00
" 2 " 10 " 22.00
" 3 " 15 " 26.00
Double Braced Steel
Track, 4, 6, 8 and 10 feet
length, 10c. Per foot.

We are the original makers of steel covered hangers and all others are imitations.
Beware of infringements, as we shall protect our rights.

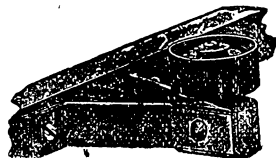
In our Steel Covered Hangers we have all the desirable features of the Best Hangers in the market, and with that we combine the cover for wheels SO NO ICE OR SNOW can reach the wheels, and making this cover as we do, we stiffen it so it is the strongest Hanger in the market, and we believe it is just perfect. Would be glad to have you try a small order and satisfy yourself.

Double-Braced Steel Rail.

PATENTED JUNE 12, 1888.

This rail being double-braced and double-riveted is the strongest rail in the market. Being braced both ways it will not sag. The joint is made so it is perfectly solid. It comes complete and ready for use, requiring only screws and screw driver for any man or boy to put it up in short order. It can be used for any grooved wheel Hanger, and a heavy door will not make it spring or tremble. Guaranteed to hold a door weighing 2,000 pounds, and used in connection with our Anti-Friction Hanger will work perfectly on large or small doors.

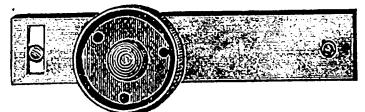
Cronk's Adjustable Stay Roller.



Made of wrought steel strap; cast block with slot
adjusted by loosening bolt.

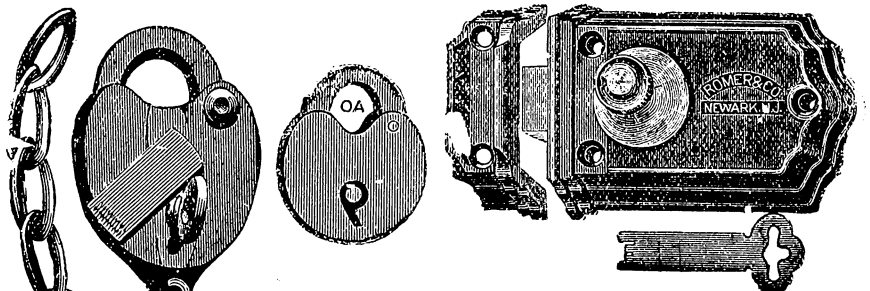
Pacific Coast Agents, CHAS. L. PIERCE & CO., San Francisco, Cal.

Cronk's Inside Adjustable Stay.



Is cheap, simple and durable, and much better than
a cleat nailed on the floor for this avoids all friction
and leaves no place for dirt to accumulate. \$2.00 per
doz. No inside door can be properly hung without
this stay.

ROMER & COMPANY, Manufacturers of PATENT JAIL LOCKS, BRASS and IRON PADLOCKS,



Adjustable Door Knobs and Trimmings,
Front Door Handles.

Patent Horizontal Rim Cylinder Reversible Night Latches.

Illustrated Lists sent to the Trade on application.

275, 277 and 279 Passaic St., near Erie and D. L. & W. R. R. Depots, Newark, N. J

PHILLIPS SCREENS

Are Reliable.

SASH WEIGHTS

E. E. BROWN & CO.,

McKean and Meadow Sts.,

PHILADELPHIA, PA.

Highest Award

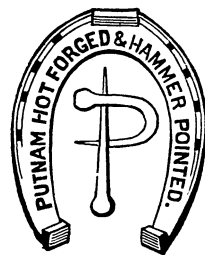
FOR

Supreme Excellence

TO

The PUTNAM Hot-Forged and

Hammer-Pointed Horse NAILS,



At the *World's Columbian Exposition* at Chicago. A medal and diploma worded :
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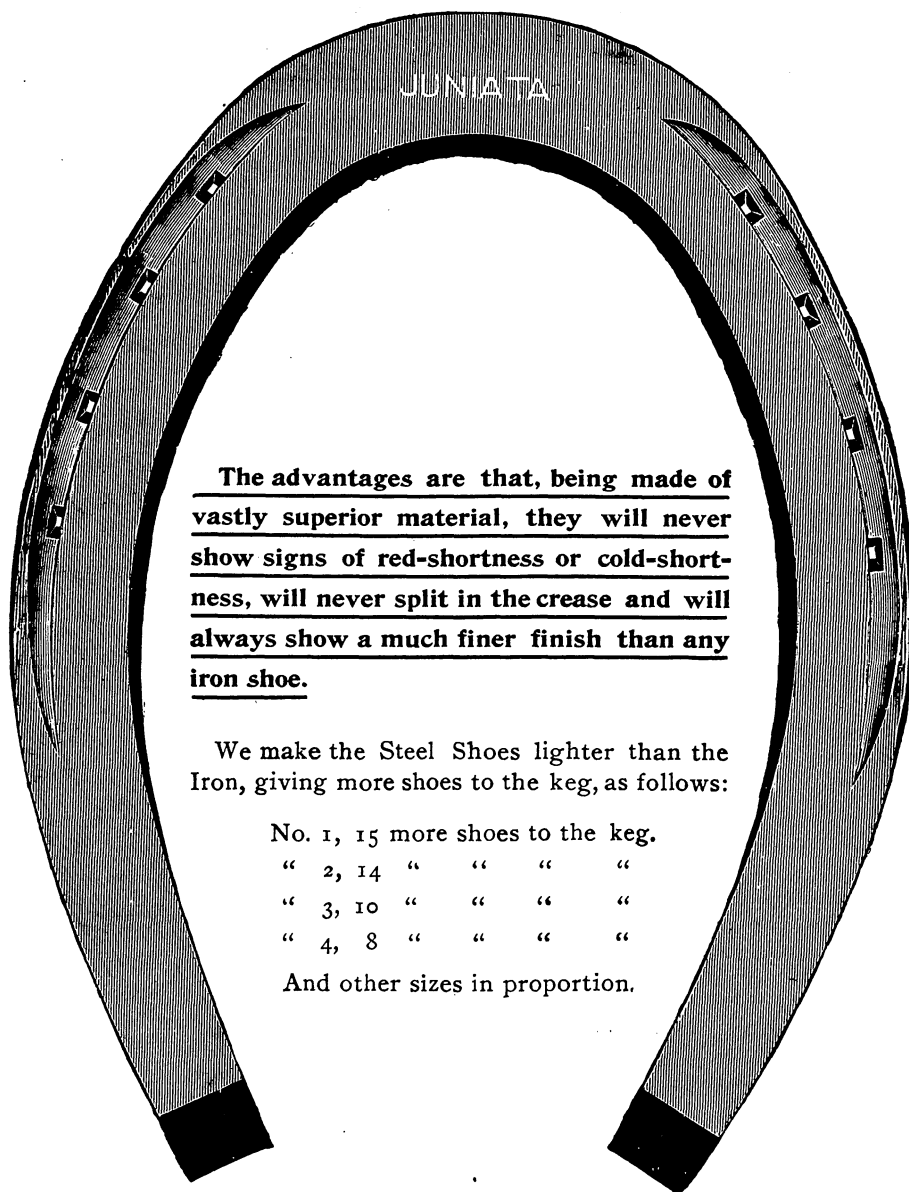
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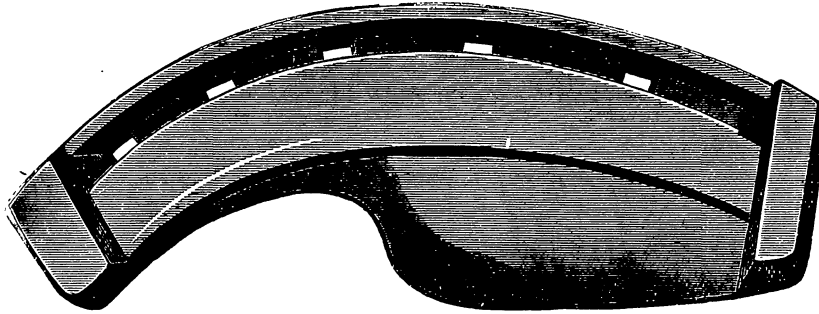
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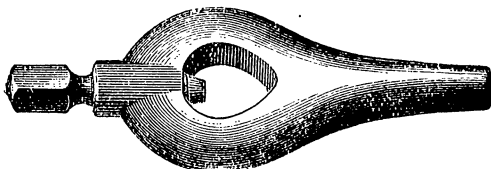
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5.....	1 1/2	80	15.....	4 1/2	2 75
6.....	1 3/4	95	16.....	5	3 25
7.....	1 1/2	95	17.....	5 1/2	4 00
8.....	1 3/4	1 10	18.....	6	5 00
9.....	2	1 20	19.....	7	6 00
10.....	2 1/4	1 35	20.....	8	7 00

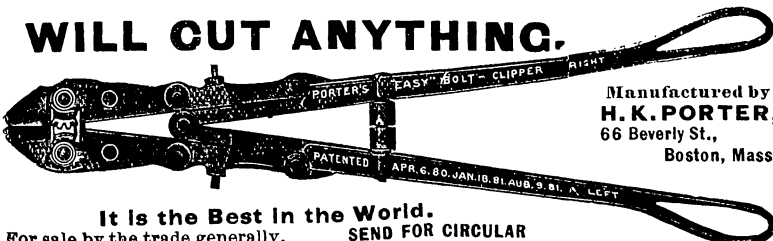
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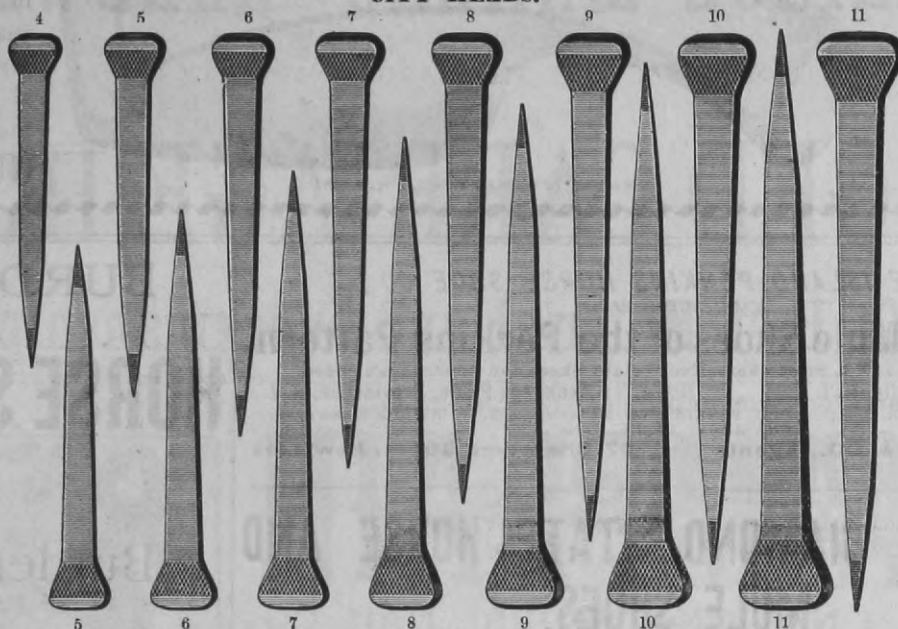
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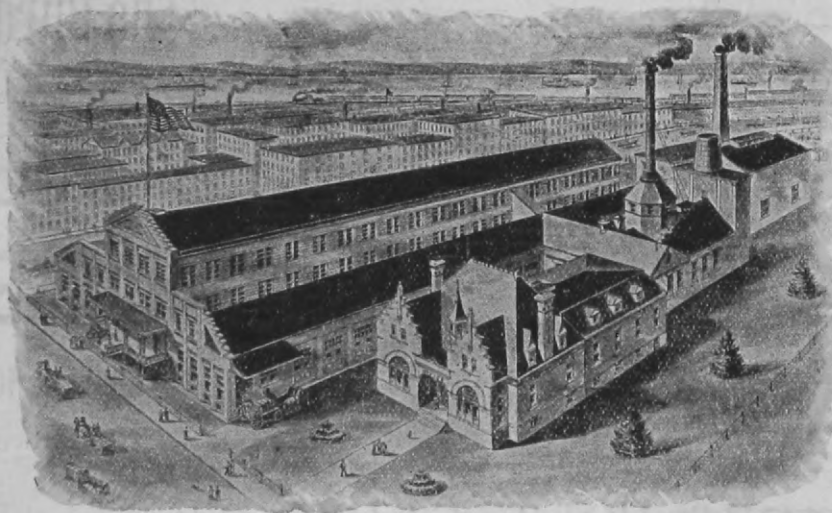
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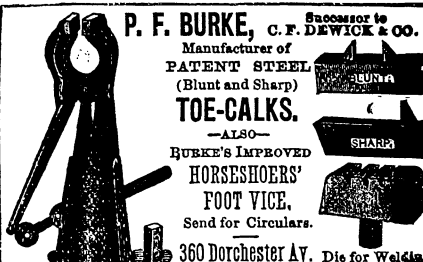
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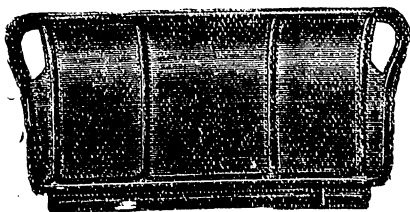
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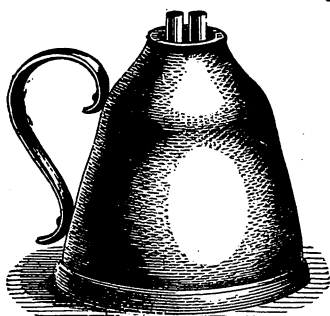
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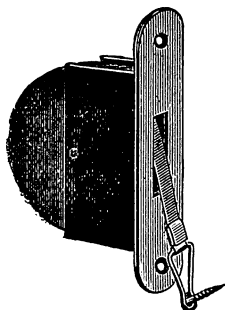
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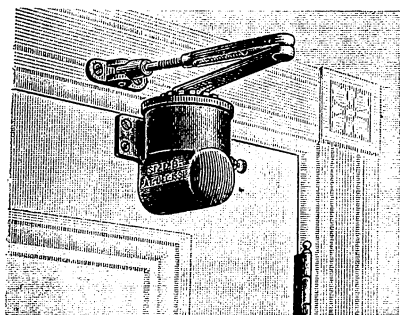
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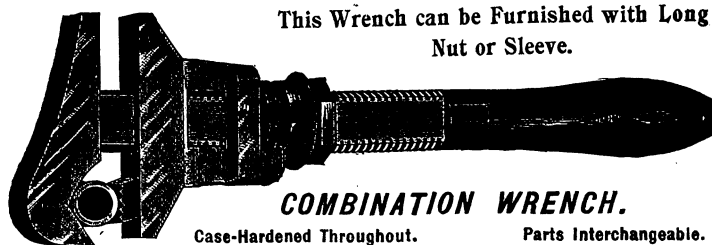
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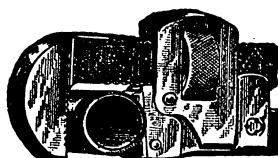
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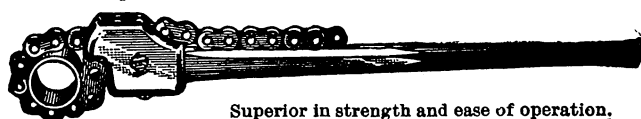
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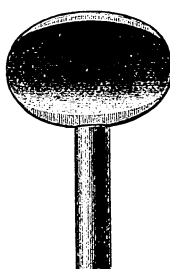


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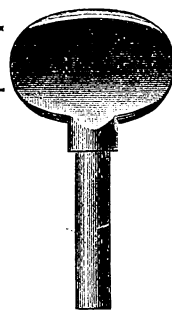
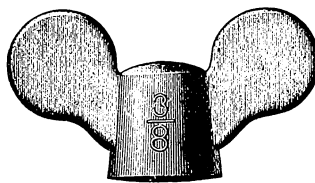
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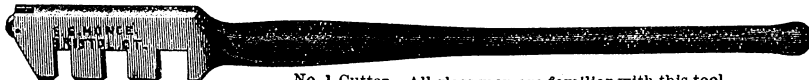
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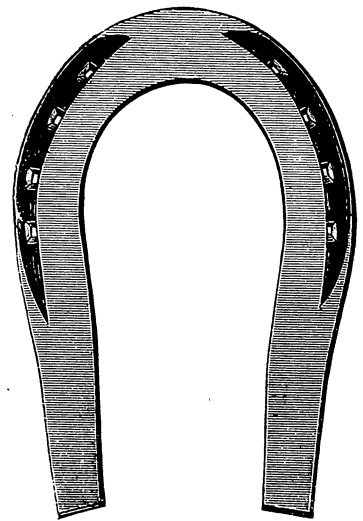
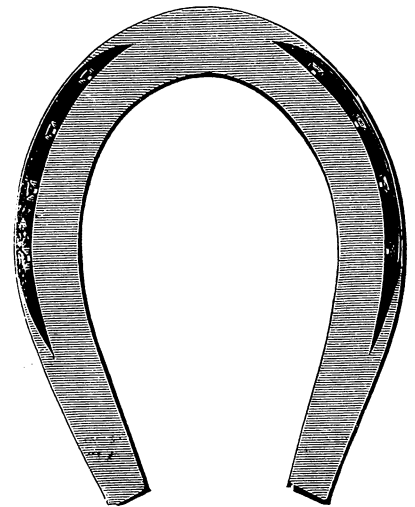
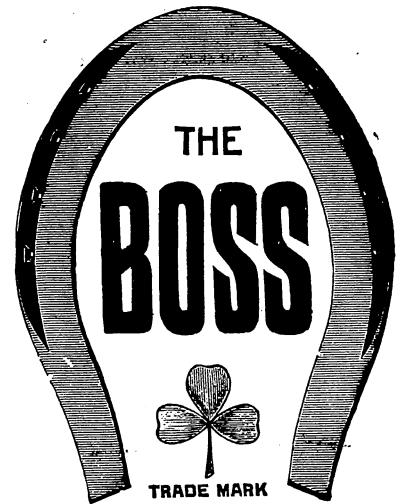
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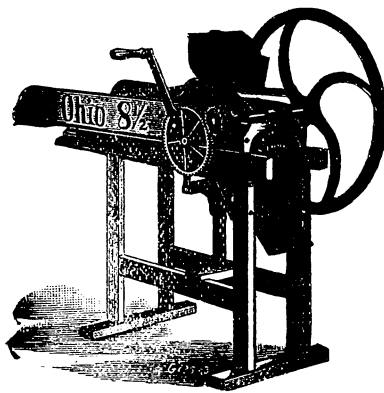
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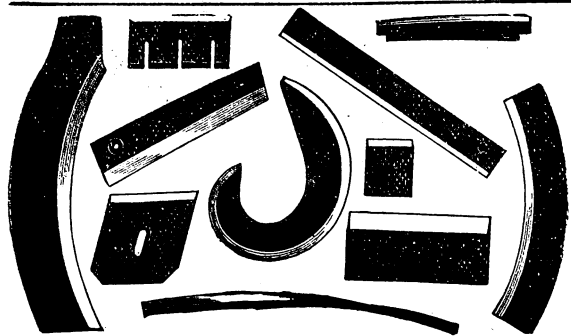
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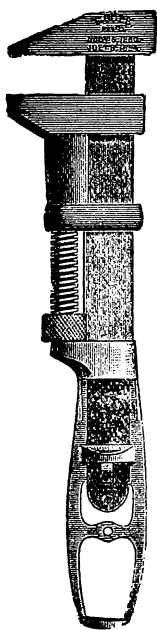
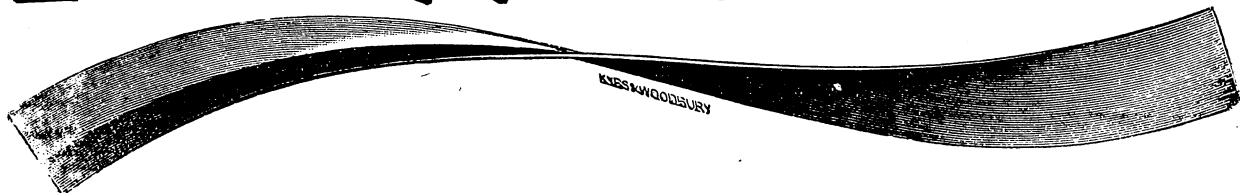
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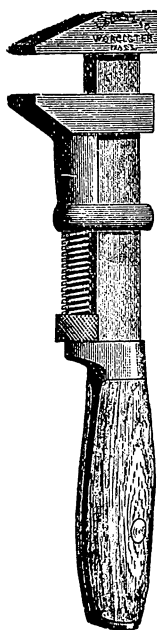
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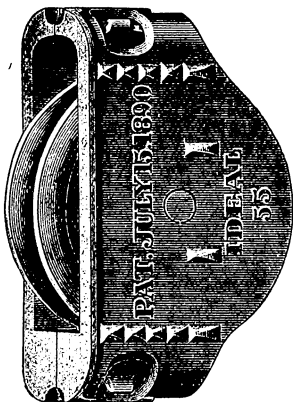
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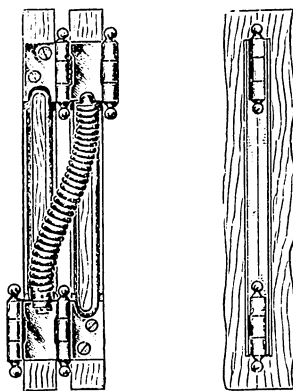
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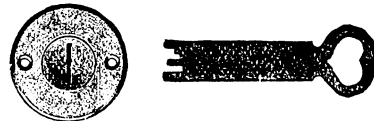
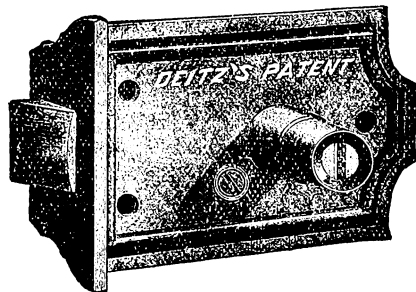
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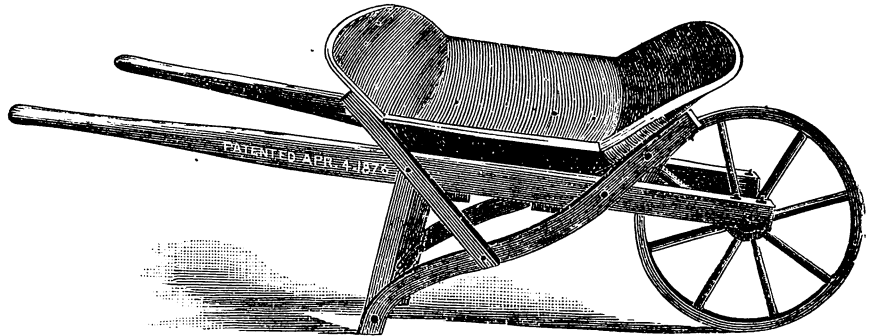
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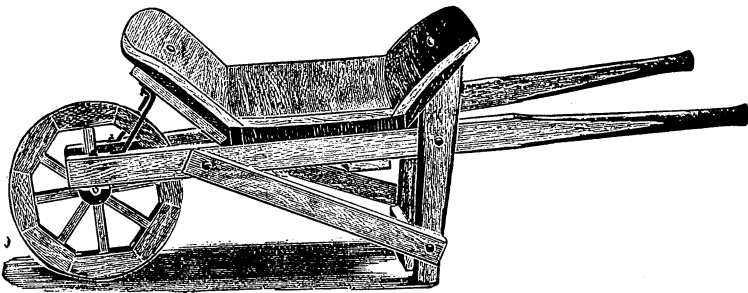
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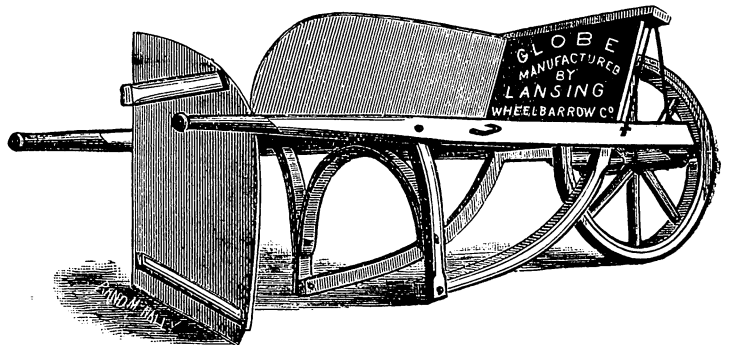
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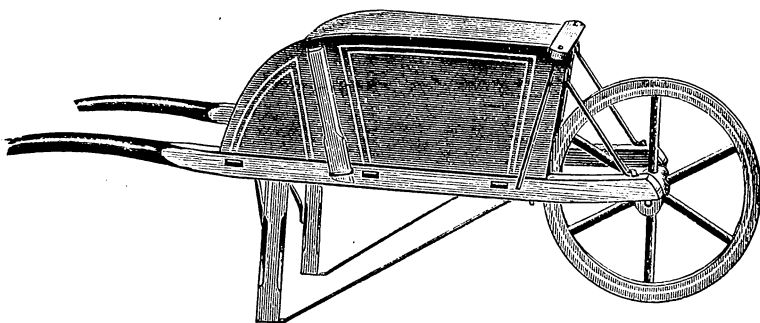
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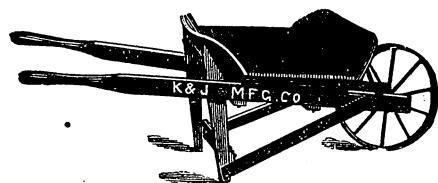
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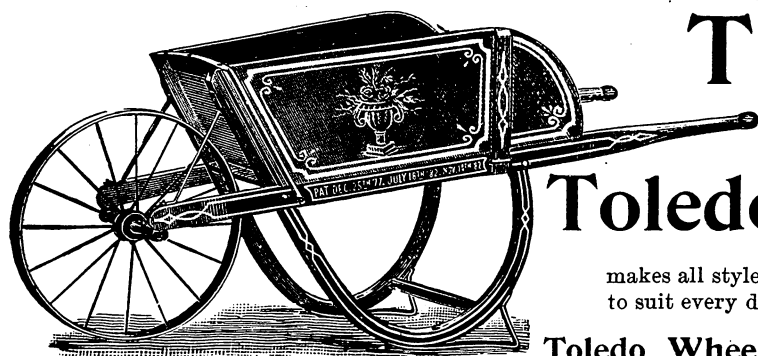
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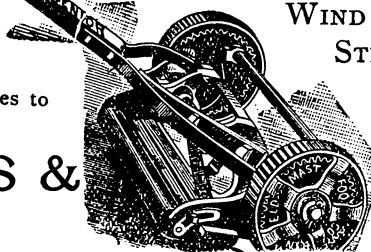
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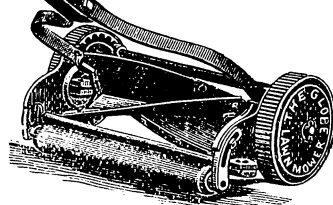
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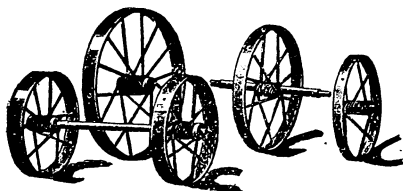
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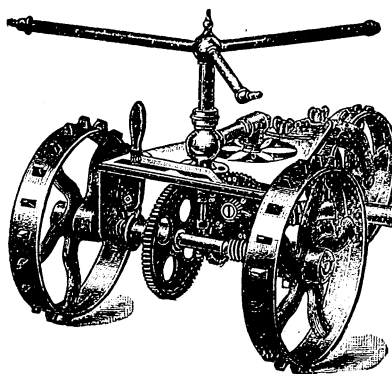


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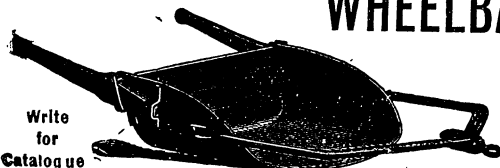
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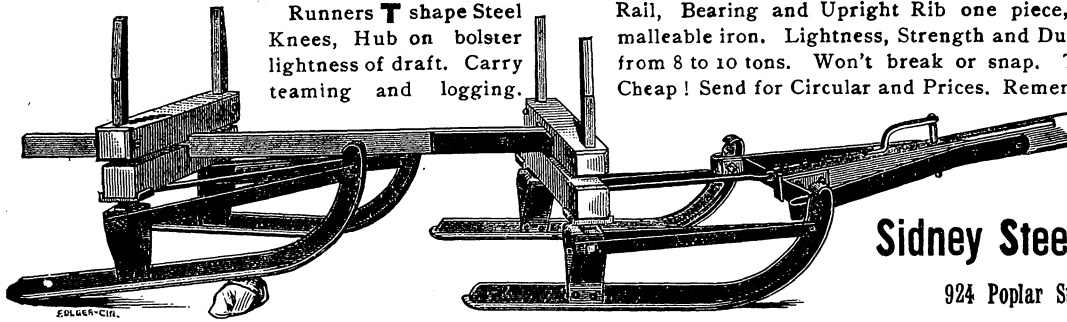
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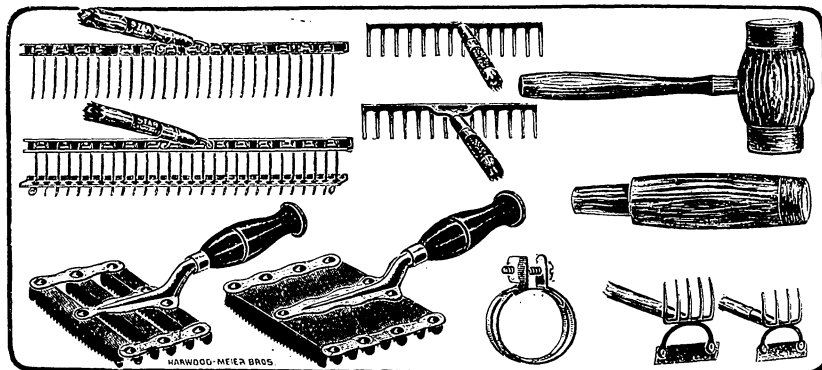
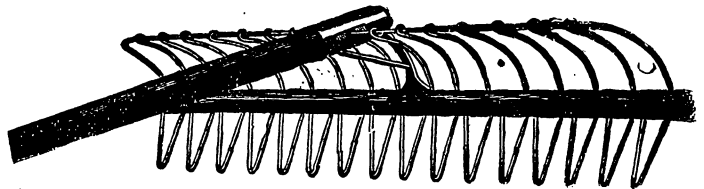
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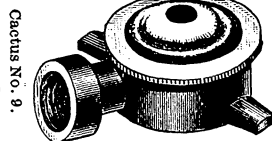
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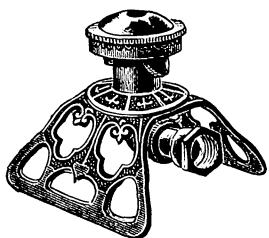
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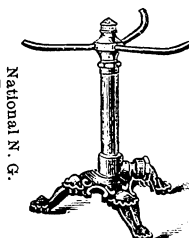


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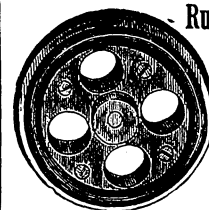
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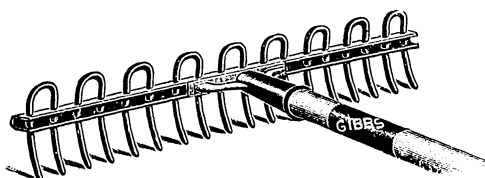
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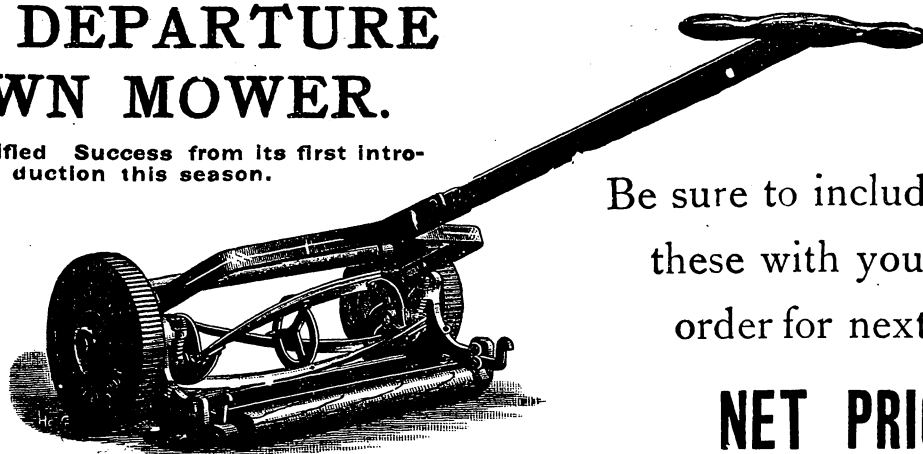


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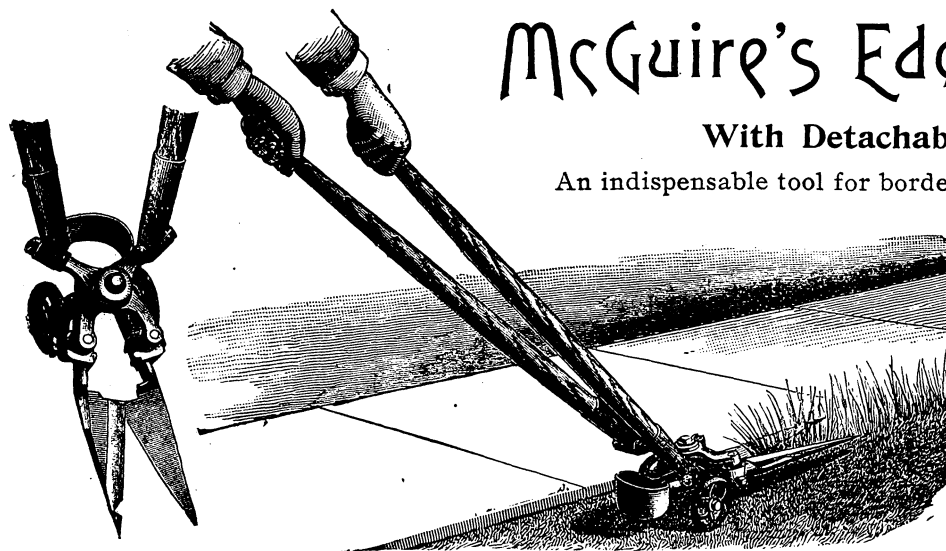


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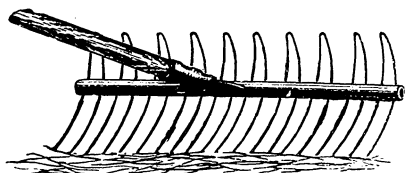
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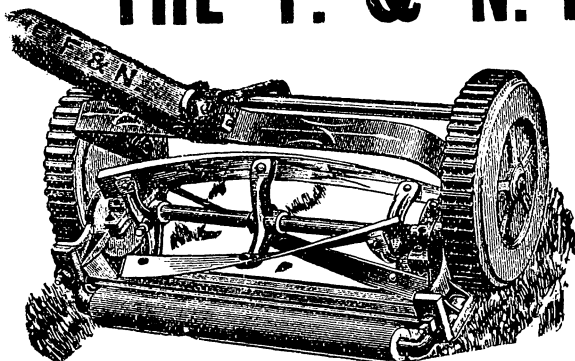
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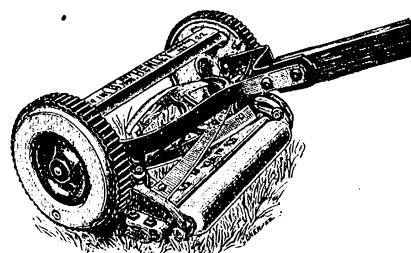
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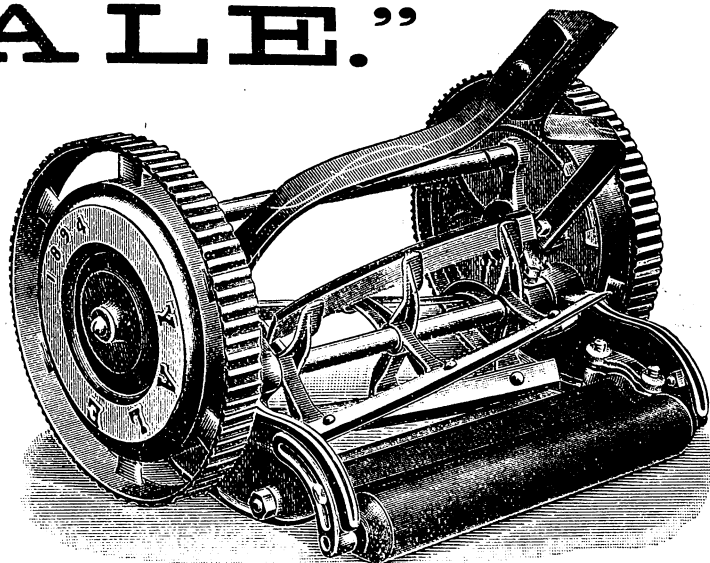
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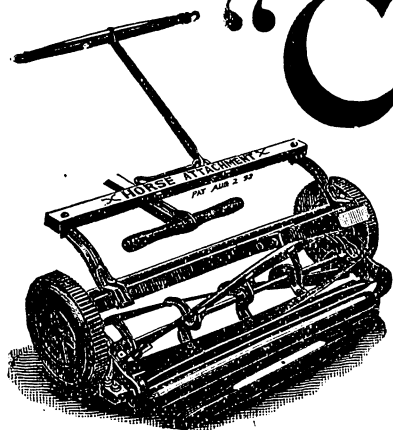
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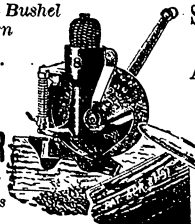
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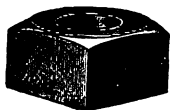
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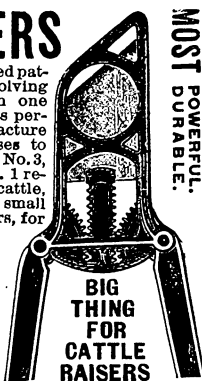
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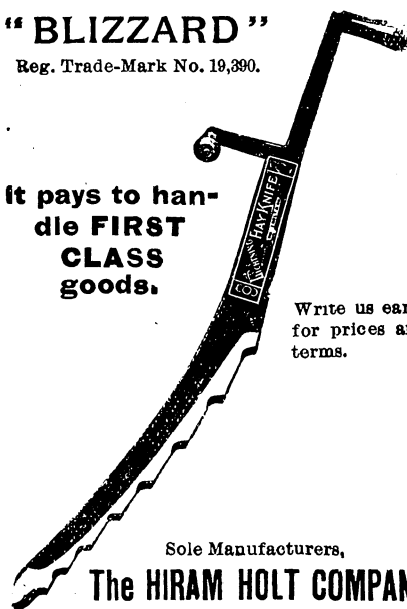
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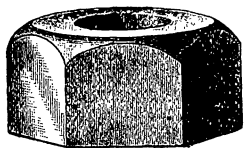
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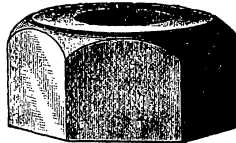
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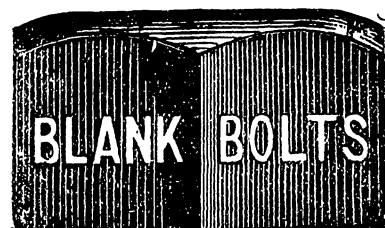
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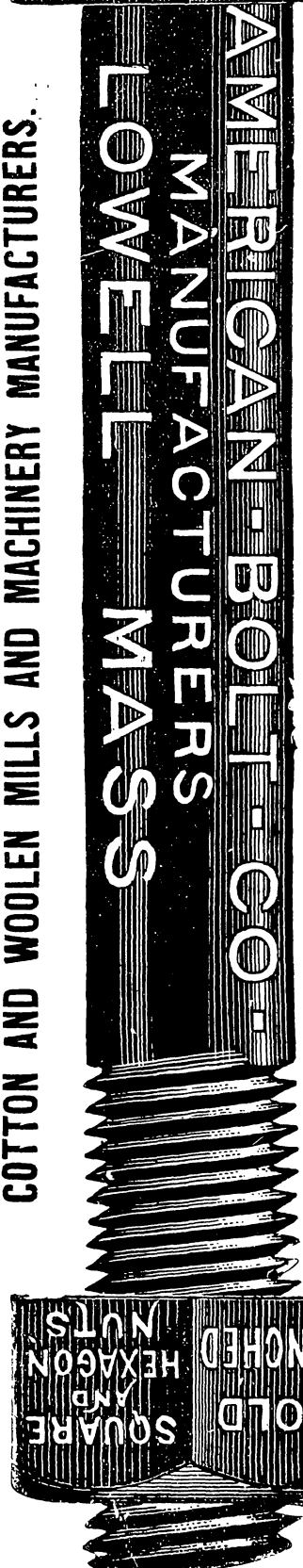
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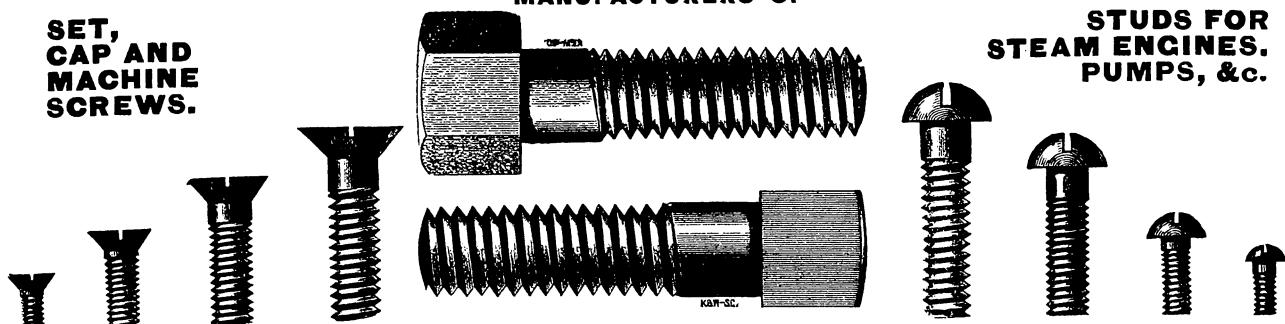
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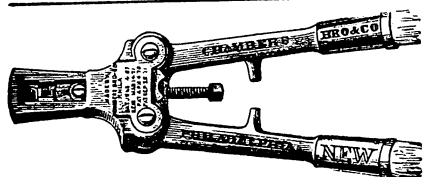
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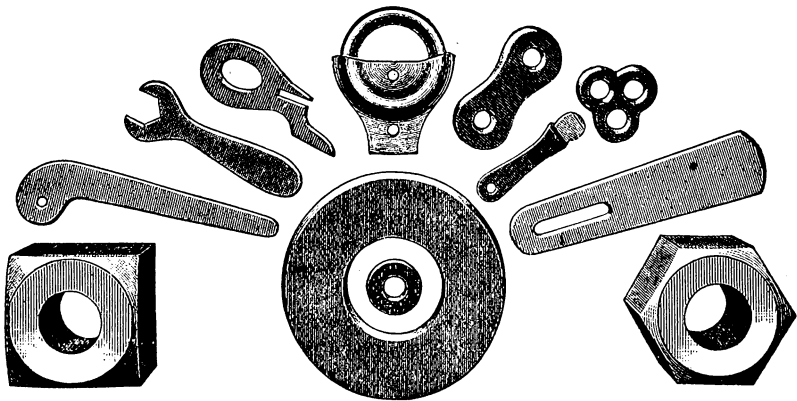
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- Furnaces, Foundry.**
Byram & Co., Detroit, Mich.
- Garden Tools.**
Dunlap, C. W., Box 2703, New York
- Gas Producers.**
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**
Pancoast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**
Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**
Boston Gear Works, Boston, Mass.
Boyle, Robt. & Son Co., Baltimore, Md.
U. S. Projectile Co., Brooklyn, N. Y.
- Glass Boards.**
Canton Saw Co., Canton, O.
- Glass Cutters.**
Monce, S. G., Bristol, Conn.
- Glass Tubes.**
Ashcroft Mfg. Co., 111 Liberty St., N. Y.
- Glue.**
Baeder, Adamson & Co., Phila., Pa.
Russia Cement Co., Gloucester, Mass.
- Grass Catchers.**
Supple Hardware Co., Phila., Pa.
- Grinding and Polishing Machines.**
Herrick & Cowell, New Haven, Conn.
Norton Emery Wheel Co., Worcester, Mass.
- Grinding Mills.**
Foss Mfg. Co., Springfield, O.
- Grindstone Dressing Machinery.**
Blake & Johnson, Waterbury, Conn.
- Grindstones.**
Cleveland Stone Co., Cleveland, O.
- Gun Implements.**
Union Hdw. Co., Torrington, Conn.
- Gunpowder. Makers of.**
Laffin & Rand Powder Co., 29 Murray St., N. Y.
- Hand Carts.**
Lansing Wheelbarrow Co., Lansing, Mich.
- Handles.**
New York Mallet and Handle Wks., 456 E. Houston St., N. Y.
- Hangers. Door.**
Chicago Spring Butt Co., Chicago, Ill.
Colburn Trolley Track Mfg. Co., Holyoke, Mass.
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Victor Mfg. Co., Newburyport, Mass.
- Hardware Comm'n Merchants.**
Doscher, Martin, 88 Chambers, N. Y.
Field, Alfred & Co., 93 Chambers St., N. Y.
Graham, John H. & Co., 111 Chambers St., New York.
Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Manufacturers.**
Dunlap, C. W., Box 2703, New York.
Hotchkiss, E. S., Bridgeport, Conn.
Russell & Erwin Mfg. Co., Chambers St., New York.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**
Bingham, W. Co., Cleveland, O.
Clarke, Thomas, St. John, New Brunswick.
Graham, John H. & Co., 113 Chambers, N. Y.
McCoy, J. F. Co., 28 Warren St., N. Y.
Stickler, Sweet & Lyon, 85 Barclay, N. Y.
- Hardware Specialties.**
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co., New Haven, Conn.
Berger Bros., Philadelphia, Pa.
Clark Mfg. Co., Buffalo, N. Y.
Empire Portable Forge Co., Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Ette & Henger Mfg. Co., St. Louis, Mo.
Gwinner Mfg. Co., Hamilton, O.
Haines & Zimmerman, Phila., Pa.
Hart, C. Mfg. Co., Detroit, Mich.
Hills, Edwin, Plainville, Conn.
Johnson, S. C., Racine, Wis.
Knapp & Cowles Mfg. Co., Bridgeport, Conn.
North Bros. Mfg. Co., Philadelphia, Pa.
Peabody & Parks, Troy, N. Y.
Welland, Chas., 149 Chambers St., N. Y.
Wilson, J. Fred, Worcester, Mass.
- Harness Snaps.**
Covert Mfg. Co., West Troy, N. Y.
Cover's Saddlery Wks., Farmer, N. Y.
Fitch, W. & E. T., New Haven, Conn.
- Hay Knives.**
Holt, Hiram, Co., E. Wilton, Me.
- Holisting Machines.**
Box, Alfred & Co., 314 Green, Phila.
Brown Holisting & Conveying Mch. Co., Cleveland, Ohio.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 98 Liberty, N. Y.
Maris & Beekley, Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee, Wis.
Morse, Williams & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow Ware.**
Bronson Supply Co., Cleveland, Ohio.
Cleveland Stamping & Tool Co., Cleveland, O.
Stuart & Peterson Co., Phila., Pa.
- Hollow Ware, Aluminum.**
Illinois Pure Aluminum Co., Lemont, Ill.
- Horse and Barbers' Clippers.**
Hotchkiss, E. S., Bridgeport, Conn.
- Horse Nails. Makers of.**
Capewell Horse Nail Co., Hartford, Conn.
National Horse Nail Co., Vergennes, Vt.
Purnam Nail Co., Neponset, Boston, Mass.
- Horse and Mule Shoes. Makers of.**
Bryden Horse Shoe Co., Catsaqua, Pa.
Burden Iron Co., Troy, N. Y.
Capewell Horse Shoe & Iron Co., Max Meadows, Va.
Diamond State Iron Co., Wilmington, Del.
Old Dominion Iron & Nail Works Co., Richmond, Va.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhine Island Perkins Horse Shoe Co., Providence.
Schoenberger & Co., Pittsburgh, Pa.
Standard Horse Shoe Co., Boston, Mass.
- Hose.**
Cleveland Rubber Works, Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 16 Park Row, N. Y.
- Hydrants, &c.**
McLean, John, 296 & 298 Monroe, N. Y.
- Hydraulic Forging.**
U. S. Projectile Co., Brooklyn, N. Y.
- Hydraulic Jacks.**
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.
- Ice-Cream Freezers.**
Clement & Dunbar, Phila., Pa.
North Bros. Mfg. Co., Phila., Pa.
Packer, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H.
- Injectors.**
Byron-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., New York.
Sherwood Mfg. Co., Buffalo, N. Y.
- Insurance. Boiler.**
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., I Broadway, N. Y.
- Iron Commission Brokers.**
Corning, Edw. & Co., 39 B'way, N. Y.
Cotton, Barclay W. & Co., Phila.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lee, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Sibell, Geo. H. & Co., Chicago, Ill.
Wister, L. & R. Co., Phila., Pa.
- Iron Ore.**
Naylor & Co., 45 Wall, N. Y.
Fulman, J. Wesley, Phila., Pa.
Samuel, Frank, Philadelphia, Pa.
- Iron. Merchants.**
Barnes, C. K. & Co., Philadelphia, Pa.
Borden & Lovell, 70 West, N. Y.
Bussenius & Cumfitt, Philadelphia.
Corning Edw. J., 29 B'way, N. Y.
Corn, J. J., 430 Walnut, Philadelphia.
Cotton, Barclay W. & Co., Phila.
Hoffman, J. W. & Co., Philadelphia.
Leonard, J., 448 West St., N. Y.
Naylor & Co., 45 Wall St., N. Y.
Nicola, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St., N. Y.
Peterson & Co., 29 Broadway, N. Y.
Thomson, W. H. & Co., Phila., Pa.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.
- Iron. Importers.**
Abbott Wheelock & Co., N. Y. and Boston.
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet. Manufacturers of.**
Cambridge Iron & Steel Co., Cambridge, Ohio.
W. Dewees Wood Co., Ltd., McKeesport, Pa.
- Ironwork. Ornamental.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Lange Fence & Wire Co., St. Louis, Mo.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foss & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Kettle Bottoms.**
Diamond Hdw. Co., Boston, Mass.
- Keys.**
Wollensak, J. F., Chicago, Ill.
- Ladders, Rolling.**
Colburn Trolley Track Mfg. Co., Holyoke, Mass.
- Ladies.**
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**
Glazier Stove Co., Chelsea, Mich.
- Lamps.**
Standard Lighting Co., Cleveland, O.
- Lanterns.**
Buhl Stamping Co., Detroit, Mich.
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**
Draper Machine Tool Co., Worcester, Mass.
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Wire.**
Clinton Wire Cloth Co., Clinton, Mass.
N. J. Wire Cloth Co., Trenton, N. J.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**
Johnson, S. C., Racine, Wis.
- Lawn Mowers.**
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.
Champion Mfg. Co., Richmond, Ind.
Colewell Lawn Mower Co., Newburgh, N. Y.
Dille & Anderson, Richmond, Ind.
Dille & McGuire Mfg. Co., Richmond, Ind.
F. & N. Mfg. Co., Richmond, Ind.
Henley, M. C., Richmond, Ind.
Mast, Foss & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N. Y.
Supple Hdw. Co., Phila., Pa.
- Lawn Rakes.**
Gibbs Mfg. Co., Canton, Ohio.
Kohler, F. E. & Co., Canton, O.
Schaeffer & Co., Dayton, Ohio.
Syracuse Specialty Mfg. Co., Syracuse, N. Y.
- Lawn Sprinklers.**
Ette & Henger Mfg. Co., St. Louis.
Gibbs Mfg. Co., Canton, Ohio.
McGowan, John H. Co., Cincinnati.
Portland Lawn Sprinkler Co., Portland, Me.
- Leather Parts.**
Greene, J. Frank, 278 Water St. New York.
- Lemon Squeezers.**
Ripley Mfg. Co., Unionville, Conn.
- Letters and Figures, Metallic.**
White, A. A. & Co., Providence, R. I.
- Letters, Paper.**
Tablet & Ticket Co., Chicago, Ill.
- Levels.**
Davis & Cook, Watertown, N. Y.
Richardson, O. F. & Son Athol, Mass.
- Locks & Knobs. Manufacturers of.**
Deltz, A. E., 97 Chambers, N. Y.
Keyless Lock Co., Chicago, Ill.
Reading Hdw. Co., Reading, Pa.
Romer & Co., Newark, N. J.
Russell & Erwin Mfg. Co., New York.
Smith & Egger, Phila. and N. Y.
Yale & Towne Mfg. Co., Stamford, Conn.

Machinery.

Am. Tool Works, Cleveland, Ohio.
 Barnes, W. F. & John, Rockford, Ill.
 Sement, Miles & Co., Philadelphia, Pa.
 Bigelow, C. E., 45 Dey, N.Y.
 Bignal & Keeler Mfg. Co., St. Louis.
 Birmingham Iron Foundry, Birmingham, Conn.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Bogert, J. L., Flushing, N. Y.
 Briggs, Marvin, 12 Broadway, N. Y.
 Carlin's Sons, Thos., Allegheny, Pa.
 Chin. Milling Mch. Co., Cincinnati, Ohio.
 Clapp, Geo. M., agt., 74 Cortlandt, N.Y.
 Coulter & McKensie Mch. Co., Bridgeport, Conn.
 Detrick & Harvey Mch. Co., Baltimore, Md.
 Fitchburg Mch. Works, Fitchburg, Mass.
 Garvin Mch. Co., Light & Canal Sts.
 Gould & Eberhardt, Newark, N. J.
 Hamilton Mch. Tool Co., Hamilton, O.
 Harrington, E. & Son, Co., Phila. Pa.
 Henderer, A. L., Wilmington, Del.
 Hendev Machine Co., Torrington, Ct.
 Hill, Clarke & Co., Boston, Mass.
 Howard & Morse, 45 Fulton St., N. Y.
 Johnson, Israel, Jr., & Co., Phila.
 Jones & Lamson Mch. Co., Springfield, Vt.
 Lovegrove & Co., Philadelphia, Pa.
 McCabe, J. J., 88 Cortlandt, N. Y.
 Machinists Supply Co., Rochester, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Conn.
National Machinery Co., Timb. Ohio.
 Newark Mch. Tool Works, Newark, N. J.
 New Haven Mfg. Co., New Haven, Conn.
 Niles Tool Wks., 138 Liberty St., N. Y.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.
 Place, Geo., 120 Broadway, N. Y.
 Poole, Robert & Son Co., Baltimore, Md.
 Power Planer Co., Worcester, Mass.
 Pratt & Whitney Co., Hartford, Conn.
 Srentiss Tool & Supply Co., N. Y.
 Scranton Supply & Mchry. Co., Scranton, Pa.
 Sellers, Wm. & Co., Phila.
 Seyfert's Sons L. F., Philadelphia, Pa.
 Steptoe, J. & Co., Cincinnati, O.
 Stow Flexible Shaft Co., Ltd., Phila.
 Toomey, Frank, Philadelphia, Pa.
 Wetherill, Robert & Co., Chester, Pa.
 Wickes Bros., Saginaw, Mich.
 Wilson, W. A., Rochester, N. Y.

Machinery for Hardware Manufacture.
 Adt, Jno. & Son, New Haven, Conn.

Machine Knives.
 Lorine Coes & Co., Worcester, Mass.
 Loyd, John, 558-562 Water St., N. Y.

Machine Tools.—See Machinery.

Machine Work.
 Pappling, J., 58th St., 11th Ave., N.Y. City.

Machinists' Scales.
 Coffin & Leighton, Syracuse, N. Y.
 Starrett, L. & Ahol, Mass.
 Valentine Tool Co., Hartford, Conn.

Machinists' Tools and Supplies.
 King, J. M. & Co., Watford, N. Y.
 Sellers, Wm. & Co., Inc., Phila.

Mallets.
 N. Y. Mallet & Handle Works, N. Y.

Mangles.
 Johnson, S. C., Racine, Wis.

Measuring Tapes.
 Keuffel & Esser Co., 127 Fulton St., N.Y.
 Lufkin Rule Co., Saginaw, Mich.

Meat Cutters and Stuffers.
 Enterprise Mfg. Co., Philadelphia, Pa.

Mechanical Instruction.
 Correspondence School of Mechanics
 Scranton, Pa.

Metals.
 Fearing, Wm. S., 100 Chambers W. V.
 Hendricks Bros., 49 Cliff, N. Y.
 Naylor & Co., 45 Wall, N. Y.

Metal Brokers.
 American Metal Co., N. Y.

Metallic Ceilings.
 Penn. Iron Roofing & Corrugating Co., Phila., Pa.

Metallurgists.
 Britton, J. Boddgett, Phil.

Milling Machines.
 Chin. Milling Mch. Co., Cincinnati, Ohio.

Mincing Knives.
 Palmer Hdw. Mfg. Co., Troy, N. Y.

Miner Lamps.
 Darby, Edw. & Sons, Phila. Pa.
 Leonard, B. E., Scranton, Pa.

Mining Screens.
 Harrington & King Perforating Co., Chicago, Ill.
 Howard & Morse, 45 Fulton, N. Y.

Models, Makers of.
 Franklin, H. H. Mfg. Co., Syracuse, N. Y.

Molding Sand.
 Obermayer, S. Co., Cincinnati, O.

Money Drawers.
 Sun Mfg. Co., Greenfield, O.
 Waddell Wooden Ware Works, Greenfield, O.

Motors, Water and Electric.
 C. & C. Electric Co., 402 and 404 Greenwish St., N. Y.
 Dallett, Thos. H. & Co., Phila., Pa.

Nail Machinery.
 Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
 Borden & Lovell, 70 West, N. Y.
 Cumberland Nail & Iron Co., Phila.
 Oxford Iron Co., 81 Washington.
 Pottstown Iron Co., Pottstown, Pa.
 Riverside Iron Wks., Wheeling, W. Va.

Nickel Platers' Supplies.
 Colburn Electric Mfg. Co., Fitchburg, Mass.
 Eddy Electric Mfg. Co., Windsor, Conn.
 Hanson & Van Winkle Co., Newark, N. J.
 Zucker & Levett Chemical Company, 10 to 14 Grand St., N. Y.

Norway Shapes, Makers of.
 Bowland, William & Harvey, Framford, Philadelphia

Novelty Manufacturers.
 Franklin, H. H. Mfg., Syracuse, N. Y.

Nut Machines.
 Dunham Nut Mch. Co., Unionville, Ct.

Nuts, Bolts, & Co., Makers of.
 American Bolt Co., Lowell, Mass.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Sankell, Wm. H. Co., Pawtucket, R. I.
 Mt. Carmel Bolt Co., Mt. Carmel, Conn.
 Pennsylvania Bolt & Nut Co., Lebacon, Pa.
 Fort Chester Bolt and Nut Co., West Chester, N. Y.
 Russell, Burdall & Ward, Port Chester, N. Y.
 Sternberg, J. B. & Son, Reading, Pa.
 Wilson, J. Fred., Worcester, Mass.
 Wm. H. Haskell Co., Pawtucket, R. I.

Oil Cups and Lubricators.
 Sherwood Mfg. Co., Buffalo, N. Y.

Oilers.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Oil Stones.
 Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
 Foster Stove Co., Ironton, O.
 Glazier Stove Co., Chelsea, Mich.

Orange Shears.
 Henry, J. T., Mfg. Co., Hamden, Conn.

Ores.
 Wister, Francis, Philadelphia, Pa.

Ox Shoes.
 Scranton Forging Co., Scranton, Pa.

Packing.
 Morrison, Robt., St. Louis, Mo.
 N. Y. Belting & Packing Co., Ltd., N. Y.

Paddocks.
 Ames Sword Co., Chicopee, Mass.
 Fraim, E. T., Lancaster, Pa.
 Hillebrand & Wolf, Phila., Pa.
 Miller Lock Co., Philadelphia, Pa.

Paint.
 Dixon, Jos. Crucible Co., Jersey City, N. J.
 Garry Iron & Steel Roofing Co., Cleveland, O.

Paint Burners.
 Dangler Stove & Mfg. Co., Cleveland, O.

Paint Cans.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Pants Stretcher.
 Covert Mfg. Co., West Troy, N. Y.

Patent Solicitors.
 Johnson & Swanson, Phila. & Wash'gton.
 Jennett, H. W. T., Washington, D. C.
 Stocking, E. B., Washington, D. C.

Peanut and Coffee Roaster.
 Olsen, A. B., Kansas City, Mo.

Perforated Metal.
 Clinton Wire Cloth Co., Clinton, Mass.
 Harrington & King Perforating Co., Chicago, Ill.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Phosphor Bronze.
 Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
 Crescent Phosphorized Metal Co., Philadelphia, Pa.
 Haik & Naumann, 516 Pearl, N. Y.

Picks and Mattocks.
 Plumb, Fayette R., Philadelphia, Pa.

Pig Iron.
 Houston, C. B. & Co., Philadelphia, Pa.
 Monitor Iron & Steel Co., Danville, Pa.
 Saylor & Co., 45 Wall, N. Y.
 Piling & Crane, Philadelphia, Pa.
 Samuel, Frank, Philadelphia, Pa.

Pig Iron Storage.
 Angus Iron Storage Warrant Co., 44 Wall, N. Y.

Pile Drivers.
 Vulcan Iron Wks., Chicago, Ill.

Pipe Bent.
 National Pipe Bending Co., New Haven

Pipe Cutting and Threading Machines.
 Bignal & Keeler Mfg. Co., St. Louis, Mo.
 Merrill Mfg. Co., Toledo, O.
 Fancoast Henry B. & Co., Philadelphia.
 Saunders's Sons, D., Yonkers, N. Y.

Pipe Grips.
 Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, & Co., Makers of.
 McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas, Makers of.
 Cumberland Nail & Iron Co., Phila.
 Donaldson Iron Co., Emaus, Pa.
 Riverside Iron Works, Wheeling, W. Va.
 Wood, R. D. & Co., Philadelphia, Pa.

Plane Irons, Manufacturers of.
 Buck Bros., Millbury, Mass.

Planes, Manufacturers of.
 Stanley Rule & Level Co., N. Y.

Plated Ware.
 Boardman L. & Son New Haddam, Ct.
 Holmes & Edwards Silver Co., Bridgeport, Conn.
 Rogers, Wm. Mfg. Co., Hartford, Ct.

Plate, Iron and Steel, Mfgs of.
 Etna-Standard Iron & Steel Co., Bridgeport, O.
 Lukens Iron & Steel Co., Coatesville, Pa.

Mahoning Valley Iron Co., Youngstown, Ohio.
 Moorhead-McLean Co., Pittsburgh, Pa.
 Mott & Sons, Reading, Pa.
 Pottstown Iron Co., Pottstown, Pa.
 Pottsville Iron & Steel Co., Pottsville, Pa.
 Singer, Nimick & Co., Pittsburgh, Pa.
 The Mahoning Valley Iron Co., Youngstown, O.
 Wellman Iron & Steel Co., Thurlow, Pa.
 Wood Alan Co., Philadelphia.

Plating, Nickel, Brass and Silver.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Pokers and Lifters.
 Troy Nickel Works, Troy, N. Y.

Polishing Machines.
 Watson & Stillman, 204 E. 43d, N. Y.

Post Hole Diggers.
 Luecke Mfg. Co., Union City, Ind.
 Gibbs Mfg. Co., Canton, Ohio.
 Wister, L. & E. Co., Philadelphia, Pa.

Postal Nettings.
 Barum, E. T., Detroit, Mich.
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
 New York Cloth Co., Trenton, N. J.
 "Silver Finish."
 Tyler Wire Wks. Co., W. S., Cleveland, O.
 Wright & Colton Wire Cloth Co., Worcester, Mass.

Powder.
 Lathin & Rand Powder Co., 29 Murray New York Powder Co., 62 Liberty St., N. Y.

Power Hack Saws.
 Millers Falls Co., 93 Reade St., N. Y.

Power Hammers.
 Seiden Mch. Co., New Haven, Conn.
 Tinselt & Eisenhardt, Philadelphia.
 Dupont Mfg. Co., St. Johnsbury, Vt.
 Jenkins & Lingie, Bellefonte, Pa.

Presses, Dies, & Co.
 E. W. Bliss Co., Brooklyn, N. Y.
 Crosby, G. A. & Co., Chicago, Ill.
 Ferracuta Mch. Co., Bridgeton, N. J.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Mch. Co., Waterbury, Conn.

Presses, Power, Makers of.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Ct.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulleys.
 Keystone Clutch Mch. Wks., Phila., Pa.
 Lake, J. H. & D. Co., Massillon, Ohio.
 Reeves Pulley Co., Columbus, Ind.

Pulley Fixings.
 Foley, J. W. & Co., Cincinnati, O.

Pumping Machinery.
 Dean Bros. Steam Pump Works, Indianapolis, Ind.
 Lucas, C. O. & Co., Greenville, Ohio.
 McGowan, J. H. & Co., Cincinnati, O.
 Maslin, J. & Son, Jersey City, N. J.
 Norwalk Iron Wks. Co., So. Norwalk, Conn.
 Southwark Fdy. & Mch. Co., Phila., Pa.
 Valley Pump Wks., Easthampton, Mass.
 Worthington, Henry R., 86 & 88 Liberty St., N. Y.

Pumps, Makers of.
 Bellevue Pump Co., Bellevue, Iowa.
 Deming Co., Salem, O.
 Douglas, W. & B., Middletown, Conn.
 Mast, Foes & Co., Springfield, O.
 Myers, F. E. & Bro., Ashland, O.

Punches and Shears, Hand and Power.
 Bertsch & Co., Cambridge City, Ind.
 E. W. Bliss Co., Brooklyn, N. Y.
 Cockburn Barrow & Mch. Co., Jersey City, N. J.
 Crosby, G. A. & Co., Chicago, Ill.
 Ferracuta Mch. Co., Bridgeton, N. J.
 Henderer, A. L., Wilmington, Del.
 Stark Mch. & Tool Co., Buffalo, N. Y.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
 Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
 Perry, W. H. & Co., Providence, R. I.

Rat and Mouse Traps.
 Burditt & Williams, Boston, Mass.
 Estey, W. S., 65 Fulton, N. Y.
 Holey Mfg. Co., Unionville, Conn.
 Sun Mfg. Co., Greenfield, O.
 Wadde Wooden Ware Works, Greenfield, O.

Razors.
 Electric Cutlery Co., 113 Chambers, N. Y.
 J. R. Torrey Razor Co., Worcester, Mass.

Reels.
 Hendryx, A. B. Co., New Haven, Conn.

Refrigerator Door Fasteners.
 Conroy, P. J. & Co., Philadelphia.

Refrigerators.
 Challenge Corn Planter Co., Grand Haven, Mich.
 Monroe Refrigerator Co., Lockland, O.

Rivers.
 Blake & Johnson, Waterbury, Conn.
 Boyce Rivet Co., Muncie, Ind.
 Burden Iron Co., Troy, N. Y.
 Cobb & Drew, Plymouth, Mass.
 New England Screw Co., Boston, Mass.
 Sternberg, J. B. & Son, Reading, Pa.
 Townsend, W. P. & Co., New Brighton, Pa.

Riveting Machines.
 Adt, Jno. & Sons, New Haven, Conn.

Rock Drills.
 Band Drill Co., 23 Park Place, N. Y.

Rolling Mill Machinery.
 Birmingham Iron Fdry, Birmingham, Conn.
 Booth, The Lloyd, Co., Youngstown, O.
 Leebach Foundry & Mch. Co., Pittsburgh, Pa.
 Mahoning Fdry & Mch. Co., Danville, Pa.
 Morgan Construction Co., Worcester, Mass.
 Robinson-Rea Mfg. Co., Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
 Trothwey Mfg. Co., Pittsburgh, Pa.
 Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Roll Lathes.
 Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.

Rolls, Chilled, Sand and Steel.
 Booth, The Lloyd, Co., Youngstown, O.
 Garrison, A. Farron, Co., Pittsburgh, Pa.
 Seaman, Sleeth & Black, Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
 Berlin Iron Bridge Co., E. Berlin, Conn.
 Boston Bridge Works, Boston, Mass.
 Cambridge Roofing Co., Cambridge, O.
 Cincinnati Corrugating Co., Piqua, O.
 Johns, H. W. Mfg. Co., 87 Malden Lane, Pittsburgh, Pa.

Rope and Web Goods.
 Covert Mfg. Co., West Troy, N. Y.
 Covert's Saddlery Wks., Farmer, N. Y.

Rope Wheels.
 Cresson, Geo. V. Co., Philadelphia, Pa.

Rubber Goods.
 Canfield, H. O., Bridgeport, Conn.

Rules, Manufacturers of.
 Keuffel & Esser Co., 127 Fulton St., N.Y.
 Lufkin Rule Co., Saginaw, Mich.
 Standard Tool Co., Athol, Mass.
 Stanley Rule & Level Co., 29 Chambers, N. Y.

Rust Preventive.
 Bridgeport Gun Implement Co., 312-315 Broadway, N. Y.

Sad Irons.
 Enterprise Mfg. Co., Philadelphia, Pa.

Sand Paper.
 Baeder, Adamson & Co., Phila., Pa.

Sash Balances.
 Caldwell Mfg. Co., Rochester, N. Y.
 Pulman Sash Balance Co., Rochester, N. Y.
 Vanderbilt Sash Balance Co., Canandaigua, N. Y.

Sash Cords and Chains.
 Morton, Thos., 65 Eliza St., N. Y.
 Oseman Mills Co., Norwich, Conn.
 Samson Cordage Works, Boston, Mass.
 Smith & Egge, Mfg. Co., Bridgeport.

Sash Locks.
 Columbian Sash & Door Lock Co., Wauson, Ohio.
 Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
 Empire Portable Forge Co., Landingburgh, N. Y.
 Palmer Hardware Mfg. Co., Troy, N. Y.

Sash Weights.
 Brown, E. & Co., Philadelphia, Pa.

Saw Filing Machines.
 Disston, Henry & Sons, Philadelphia, Pa.

Saws, Makers of.
 Butler Mfg. Co., Boston, Mass.
 Disston, Henry & Sons, Phila., Pa.
 National Saw Co., 98 Reade St., N. Y.
 Simonds Mfg. Co., Fitchburg, Mass.

Saw Vises.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Saw Sets.
 Talator Mfg. Co., 84-88 Chambers, N. Y.

Scales, Manufacturers of.
 Buffalo Scale Co., Buffalo, N. Y.
 Chauldon, John & Sons, 85-89 Cliff, N. Y.

Scrapers, Road.
 Am. Steel Scraper Co., Sidney, Ohio.
 Kilbourne & Jacobs Mfg. Co., Columbus, O.
 Sidney Steel Scraper Co., Sidney, O.

Screens, Coal and Ore.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Screens, Door and Window.
 Phillips, A. J. & Co., Fenton, Mich.

Screw Cutting Machinery.
 Wells Bros. & Co., Greenfield, Mass.
 Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
 Brown, R. H. & Co., New Haven, Conn.
 Gay & Parsons, Augusta, Me.
 Mayhew, H. C. O., Shelburne Falls, Mass.

Screw Plate and Pipe Cutter.
 Jarecki Mfg. Co., Erie, Pa.

Screws, Makers of.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Wm. H. Haskell Co., Pawtucket, Mass.
 Miles, J. S., 205 Quarry, Philadelphia.
 New England Screw Co., Boston, Mass.
 Reynolds & Co., New Haven, Conn.
 Worcester Machine Screw Co., Worcester, Mass.

Screw Saws.
 Barnes, W. F. & John, Rockford, Ill.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Seythe Stones and Whetstones.
 Pike Mfg. Co., Pike Station, N. H.
 Cleveland Stone Co., Cleveland, O.

Shafting, Makers of.
 Cresson, Geo. V. Co., Philadelphia, Pa.
 Fairmount Mch. Co., Philadelphia, Pa.
 Fittsimons & Co., Cleveland, Ohio.
 Sellers, Wm. & Co., Inc., Phila. Pa.
 Stow, C. Mfg. Finghamton, N. Y.

Shaped Iron and Steel.—Manufacturers of.
 Etna-Standard Iron & Steel Co., Bridgeport, O.

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Allentown Rolling Mill. Allentown, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Passaic Rolling Mill Co., Paterson, N. J.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila., Pa.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.

Agnes Shear Co., Bridgeport, Conn.
Bushings, R. Sons Co., Newark, N. J.

Sheet Iron and Steel, Manufacturers of.

Atma-Standard Iron and Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess Bros., Pittsburgh, Pa.
Mahoning Valley Iron Co., Livingston, Ohio.
Moorehead-McCleane Co., Pittsburgh, Pa.
Florian & Co., 29 Broadway, N. Y.
Singer, Nimick & Co., La., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Metal Work.

Clark & Cowles, Plainville, Conn.

Sheet Zinc.

Mathlessen & Hegeler Zinc Co., La Salle, Ill.

Shelf Brackets.

Koch, A. B. & Co., Peoria, Ill.

Shipping Blanks.

Barlow Bros., Grand Rapids, Mich.

Slings.

Douglas, W. & B., Middletown, Conn.

Skates, Ice.

Dame, Stoddard & Kendall, Boston, Mass.
Lovell, Jno. P. Arms Co., Boston, Mass.
Sickels, Sweet & Lyon, 35 Barclay St., N. Y.
Winslow, Sam'l., Skate Mfg. Co., Worcester, Mass.

Skates, Roller.

Henley, M. C., Richmond, Ind.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l., Skate Mfg. Co., Worcester, Mass.

Smelting Works.

Reeves, Paul S., 760 S. Broad, Phila.

Soldering Coppers.

Clendenin Bros., Baltimore, Md.
Covert Mfg. Co., West Troy, N. Y.

Sparking Tubes.

Ostrander, W. R. & Co., 204 Fulton St., N. Y.
Wollensak, J. F., Chicago, Ill.

Specialties, Pat. Articles.

Konigslow, O., Cleveland, O.
Rhodes, L. E. Co., Hartford, Conn.

Spelter.

Mathlessen & Hegeler Zinc Co., La Salle, Ill.

Spoons and Forks.

Boardman, L. & Son, New Haddam, Conn.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Boggs, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.

Hartley & Graham, 818-815 E'way, N. Y.

Spring.

Cary, Alanson, 240-242 W. 29th St., N. Y.
Dundas Bros., Bristol, Conn.
Miller & Van Winkle, Brooklyn, N. Y.
Morgan Spring Co., Worcester, Mass.
Roland, Wm. & Harvey, Phila., Pa.
Sabin Machine Co., Montpelier, Vt.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.

Chicago Spring Butt Co., Chicago, Ill.
Fullman Sash Balance Co., Rochester, N. Y.
Stover Mfg. Co., Freeport, Ill.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Stamped Ware.

Am. Stamping Co., 104 & 106 John St., New York.

Stamping Works.

Cleveland Stamping & Tool Co., Cleveland, O.

Staples.

Cobb & Drew, Plymouth, Mass.
Titchener, E. H. & Co., Binghamton, N. Y.

Steam Gauges.

Ashcroft Mfg. Co., 111 Liberty St., N. Y.
Bristols Mfg. Co., Waterbury, Conn.

Steam Hammers, &c., Makers of.

Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia Street, N. Y.
Tretzwey Mfg. Co., Pittsburgh, Pa.

Steam Heating.

Webster Warren & Co., Camden, N. J.

Steam Separators.

Gouvert Mfg. Co., 32 Cortland St. N. Y.
Harrison Safety Boiler Wks., Phila., Pa.

Steel. Cold Rolled Strip.

Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.

Hoeft, C. W., 52 Fulton St., N. Y.
Howard, W., 61 Fulton St., N. Y.
Wolf, C. H., 177 William St., N. Y.

Steel Importers.

Abbott, Wheelock & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 91 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 88 John, N. Y.
Wetherill Bros., 93 Liberty St., N. Y.
Whitney, A. R. & Co., B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Steel (Mushet's Special).

Jones, B. M. & Co., Boston.

Steel Manufacturers.

Atma-Standard Iron & Steel Co., Bridgeport, O.
Bethlehem Iron Co., S. Bethlehem, Pa.
Baker, Herman & Co., 103 Duane St. Carbon Steel Co., Pittsburgh, Pa.
Chester Steel Castings Co., Phila., Pa.
Chrome Steel Works, Brooklyn, N. Y.
Creighton Steel Co., Pittsburgh, Pa.
Eiken & Co., Hagen, Germany.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 91 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorehead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 88 John N. Y.
Naylor & Co., 45 Wall, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Rowland, Wm. & Harvey, Frankford, Pa.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Taylor Iron & Steel Co., High Bridge, N. J.
Wordlaw, S. C., Sheffield, Eng.
Wetherill Bros., 93 Liberty, N. Y.
Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel, Manufacturers' Agents.

Barnes, C. K. & Co., Philadelphia, Pa.
Corning, Edw. & Co., 29 B'way, N. Y.
Frasse Co., 19 Warren St., New York.
Lindsay, Jas. G. & Co., Phila., Pa.
Pierson & Co., 29 Broadway, N. Y.

Steel Rails, Manufacturers of.

Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Johnstown, Pa.
Montour Iron & Steel Co., Danville, Pa.
Riverside Iron Wks., Wheeling, W. Va.

Steel, Tool.

Frankford Steel Co., Philadelphia, Pa.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.

Bicycle Step Ladder Co., Chicago, Ill.
Croissant, M., Albany, N. Y.

Stocks and Dies.

Armstrong Mfg. Co., Bridgeport, Conn.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunders Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stone Linings.

Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.

Cheney, S. & Son Manlius, N. Y.

Stove Trimmings.

Troy Nickel Works, Troy, N. Y.

Stove Trucks.

Gwinner Mfg. Co., Hamilton, O.

Street Lamps.

Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.

Electric Outlery Co., 118 Chambers, N. Y.
J. R. Torrey & Co., Worcester, Mass.

Structural Iron Work.

Berlin Iron Bridge Co., East Berlin, Conn.
Boston Bridge Wks., Boston, Mass.
Lindsay, Jas. G. & Co., Phila., Pa.
Wrought Iron Bridge Co., Canton, O.

Sulphuric Acid.

Mathlessen & Hegeler Zinc Co., La Salle, Ill.

Tacks, Brads, Staples, &c.

Atlas Tack Corporation, Boston, Mass.
Clendenin Bros., Baltimore, Md.
Cobb & Drew, Plymouth, Mass.
Grand Crossing Tack Co., Grand Crossing, Ill.

Taps and Dies.

Eutterfield & Co., Derby Line, Vt.
Carpenter, J. M., Tap & Die Co., Pawtucket, R. I.
Manning, Maxwell & Moore, 111 Liberty St., N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Laboratories.

Riehle Bros. Testing Mch. Co., Philadelphia.

Testing Machines.

Riehle Bros. Testing Mch. Co., Phila.

Theoretical Hardware.

Wollensak, J. F., Chicago, Ill.

Thill Springs.

Frost Thill-Spring Co., Boston, Mass.

Sabin Machine Co., Montpelier, Vt.

Timber and Mineral Land.

Robertson, E. Co., Cincinnati, O.

Time Record.

Scattergood, H. W., Phila., Pa.

Tin Plate Machinery.

Lloyd Booth Co., Youngtown, Ohio.

Tinware.

Am. Stamping Co., 104 & 106 John St.,

Tire Upsetters.

Butts & Ordway, Boston, Mass.

Toe Calks, Steel.

Burke, P. F., Boston, Mass.

Tool Chests.

Am. Tool Co., 200 W. Houston St., N. Y.

Tools.

Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Frasse Co., 19 Warren St., New York.
Fray, Jno S. & Co., Bridgeport, Conn.
Mayhew, H. H. Co., Shelburne Falls, Mass.
Millers Falls Co., 98 Reade, N. Y.
Nicol & Co., Chicago, Ill.
Richardson, C. F. & Son, Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, New York.
Tower & Lyon, 95 Chambers St., N. Y.

Tools, Blacksmith and Wheelwrights.

Buffalo Forge Co., Buffalo, N. Y.
Butts & Ordway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Plumb, Fayette R., Philadelphia, Pa.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Tools, Steam and Gas Fitters'

Saunders Sons, D., Yonkers, N. Y.

Torches, Oil and Gasoline.

Danier Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp Co., Cleveland, Ohio.
Standard Lighting Co., Cleveland, O.

Transom Lifters.

Wollensak, J. F., Chicago, Ill.

Trucks, Manufacturers of.

Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co., Lansing, Mich.

Tubes, Seamless Drawn Copper.

Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.

Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.

Ellwood Shafting & Tube Co., Ellwood City, Pa.
Leng's John S. Son & Co., 4 Fletcher St., New York.
Shelby Steel Tube Co., Shelby, O.
U. S. Projectile Co., Brooklyn, N. Y.

Tumbling Barrels.

Henderson Bros., Waterbury, Conn.

Turnbuckles.

Central Iron & Steel Co., Brazil, Ind.
Cleveland City Forge & Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, Makers of.

Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
New Process Twist Drill Co., Taunton, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.

Best, Fox & Co., Pittsburgh, Pa.
Chapman Valve Mfg. Co., Boston.
Eynon-Evans Mfg. Co., Philadelphia, Pa.
Jenkins Bros., 71 John, N. Y.
Junkenhelmer Co., Cincinnati, O.
McNab & Harlin Mfg. Co., 563 John, N. Y.
Mason Regulator Co., Boston, Mass.

Ventilating Fans.

Huyett & Smith Mfg. Co., Detroit, Mich.

Ventilator Appliances.

Howard & Morse, 45 Fulton, N. Y.

Vise Jaws.

Newark Mch. Tool Co., Newark, N. J.

Vises.

Capital Mch. Tool Co., Auburn, N. Y.
Hollands Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y.
Millers Falls Co., 93 Reade St., N. Y.
Prentiss Vise Co., 44 Barclay, N. Y. Y.
Tower & Lyon, 95 Chambers St., N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Wagon Jacks.

Covert Mfg. Co., West Troy, N. Y.
Covert's Saddlery Works, Farmer, N. Y.

Washers.

Hickell, Wm. H. Co., Pawtucket, R. I.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Washing Machines.

Richmond Cedar Works, Richmond, Va.

Water Filters.

Darling Filter Co., Cleveland, O.

Water Meters.

Worthington, Henry R., 86 & 88 Liberty St., N. Y.

Water Wheels.

Poole, Robt. & Son Co., Baltimore, Md.

Weather Strips.

Thomas, Jno. H. Mfg. Co., Piqua, Ohio.

Wheelbarrows.

Amer. Steel Scraper Co., Sidney, Ohio.
Cockburn Barrow & Mch. Co., Jersey City, N. J.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co., Sidney, O.
Toledo Wheelbarrow Works, Toledo, Ohio.

Wheels.

Arnold Metal Wheel Co., New London, Ohio.

Window Cord, Makers of.

Samson Cordage Works, Boston, Mass.

Wire, Manufacturers of.

Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Miller & Van Winkle, Brooklyn, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wetherill Bros., 93 Liberty St., F. Y.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth.

Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff, N. Y.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Reliance Wire & Iron Wks., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
W. S. Tyler Wire Works Co., Cleve'd.

Wire Cutters.

Cronk Hanger Co., Elmira, N. Y.
Higman Hdw. Co., Higman, Conn.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.

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Bissell, E. Son & Co.....	60	Colliau, Victor.....	27	Field, Alfred & Co.....	76	Jarecki Mfg. Co.....	44
Blake & Johnson.....	12	Columbian Sash & Door Lock Co.....	100	Fitch, W. & E. T.....	129	Jeffrey Mfg. Co.....	38
Bliss Co., E. W.....	40	Conroy, P. J. & Co.....	79	Fitchburg Machine Works.....	45	Jenkins Bros.....	1
Boardman, L. & Son.....	85	Continental Iron Works.....	33	Fitzsimons & Co.....	130	Jenkins & Lingle.....	43
Bogert, John L.....	56	Corbin, P. & F.....	104	Flagg, Stanley G. & Co.....	49	Jenner, H. W. T.....	6
Boker, Hermann & Co.....	18	Corning, Edw. & Co.....	16	Foley, J. W. & Co.....	49	Jessop, Wm. & Sons.....	18
Boone, W. C. Mfg. Co.....	25	Correspondence School of Mechanics.....	129	Fos Mfg. Co.....	43	Johns, H. W. Mfg. Co.....	15
Booth, The Lloyd Co.....	28	Cotton, Barclay W. & Co.....	16	Forehand Arms Co.....	91	Johnson, I. G. & Co.....	130
Borden & Lovell.....	12	Coulter & McKenzie Machine Co.....	44	Foreman Stove Co.....	95	Johnson, I. H., Jr., & Co.....	54
Borgner, Cyrus.....	12	Covert Mfg. Co.....	86&87	Foster Stove Co.....	46	Johnson, S. C.....	96
Boston Bridge Works.....	15	Covert's Saddlery Works.....	65	Fraim, E. T.....	105	Jones, B. M. & Co.....	21
Boston Gear Works.....	32	Covington, Mrs. S. C.....	56	Frankford Steel Co.....	19	Jones & Lamson Machine Co.....	64
Box, Alfred & Co.....	48	Cox, Justice, Jr.....	17	Franklin, H. H. Mfg. Co.....	60	Jones, Jesse & Co.....	74
Boyce Rivet Co.....	130	Cramp, Wm. & Sons S. & E. B. Co.....	3	Fraser Co.....	24	Kayser, Ellison & Co.....	13
Bradlee & Co.....	16	Crescent Horse Shoe & Iron Co.....	111	Fray, Jno. S. & Co.....	85	Keeley, Jerome & Co.....	17
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Briggs, Marvin.....	69	Cronk Hanger Co.....	106	Garrison, A., Foundry Co.....	23	Keystone Clutch & Machine Works.....	48
Bristols' Mfg. Co.....	1	Crosby, G. A. & Co.....	42	Garry Iron & Steel Rfg. Co.....	10	Keystone Mfg. Co.....	67
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Buckeye Mfg Co.....	83			Grand Crossing Tack Co.....	10	Lake, J. H. & D. Co.....	48
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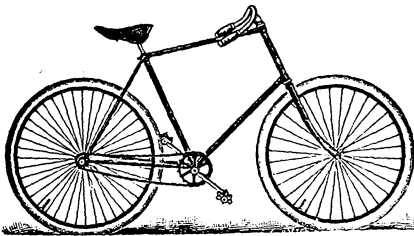
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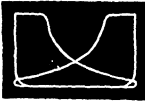
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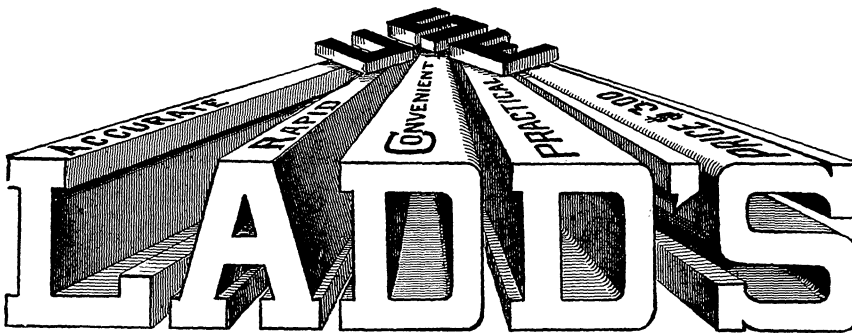
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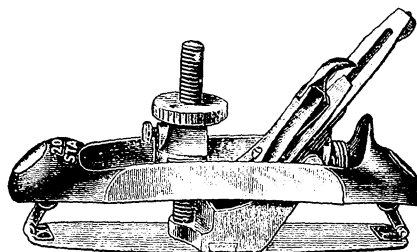
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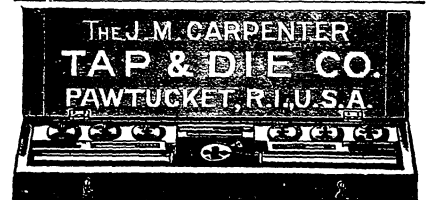
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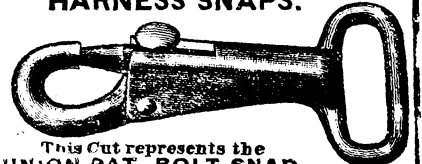
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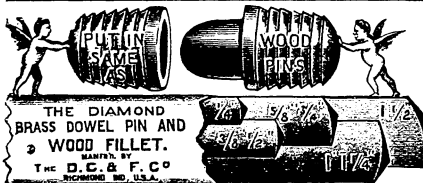
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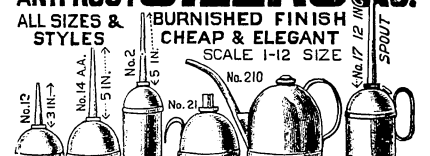
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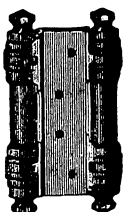
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THE IRON AGE

THURSDAY, JANUARY 4, 1894.

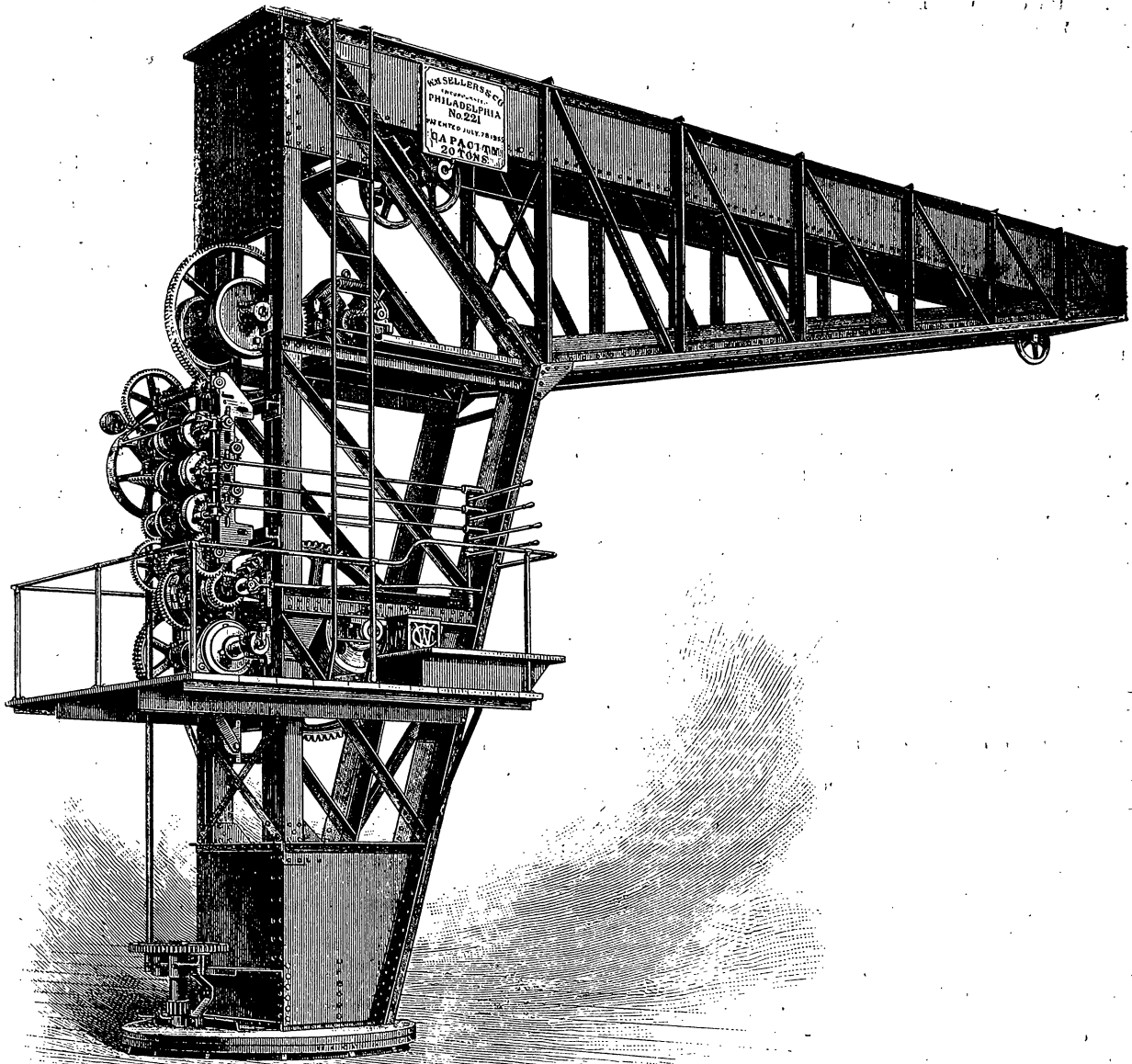
The Sellers 20-Ton Swing Crane.

Wm. Sellers & Co., incorporated, of Philadelphia, Pa., have designed and built for the Cambria Iron Company, Johnstown, Pa., a 40,000-pound swing crane, the general features of which are shown in the accompanying en-

range than is possible in cranes of the other form. The crane is driven by a 15 horse-power constant speed electric motor at a potential of 220 volts, the motor being carried upon a platform placed inside the crane frame. A belt is carried from the motor to a pulley connected with a train of friction clutches by which the various move-

manner, and a fourth lever gives a change of speed, when required.

While the motor and the driving mechanism may be in motion, none of the various movements will take place until the corresponding lever is manipulated, and all the movements may be made simultaneously or independently, as the conditions may require.



THE SELLERS 20-TON SWING CRANE

graving. It has a mast about 28 feet high and a jib with an effective radius of 31 feet 9 inches. The whole frame forms a compound beam, and the structure is exceedingly stiff in all directions. The trolley is contained entirely within the jib, and runs upon rails secured to shelf angles near the bottom of the upper members, thus permitting the top of the jib to be tied together by cross braces its whole length. The absence of the usual diagonal strut extending from the bottom of the mast to nearly the end of the jib permits the hook to be racked close to the center of the crane, thus giving a much greater

ments of the crane are accomplished. These clutches are carried upon a housing secured to the back of the frame where nearly all the operating machinery is grouped, and is thus removed from liability to damage by the swinging load. Each of three clutch shafts is provided with a pair of clutches so arranged as to give movement in opposite directions, and each pair of clutches is controlled by a single lever movement in one direction for instance, hoisting, in the opposite direction, lowering, while in the middle position the load is at rest. The racking and turning movements are obtained in the same

Any tendency to move the trolley inward while hoisting is overcome by a small friction brake, which is applied automatically when the clutches for the trolley movement are thrown out. The load is automatically sustained at all points by the patent retaining device of the makers of the crane, and this feature being interposed between the operating machinery and the drum will retain the load if from any cause the machinery should be damaged or broken. The importance of such a safeguard will be appreciated. The load is carried upon a two part chain and the hook is hung upon ball bear-

ings of ample surface, so as to rotate easily under the maximum load.

It will also be noticed that the operating platform is placed at some distance above the floor, this being necessary in the present case to clear obstructions in the shop. This fact also made it desirable to group all the machinery unusually high, so as to bring it under the most convenient supervision of the operator.

All the high speed gears have cut teeth, and the crane works very smoothly. It hoists the full load of 40,000 pounds at 6 feet per minute, and light loads at 36 feet per minute; racks at the rate of 50 feet per minute, and turns at the rate of one revolution per minute, these being the speeds desired by the purchasers. Greater speeds are given when required. We are informed that the same parties are now constructing a somewhat similar crane of 30,000 pounds capacity for the Cambria Iron Company.

The Steam Trials of the British Torpedo Vessel "Speedy."

A special interest attaches to the recently concluded steam trials of the new British twin screw torpedo gunboat "Speedy," owing to the fact that all her boilers are of the Thornycroft water tube type, she being the first ship in the British Navy fitted with boilers of this kind. Water tube boilers have given such good results in torpedo boats that it was decided to test them in actual service in a larger vessel, and the "Speedy" was accordingly fitted with them. The steam trials have been very satisfactory, and it now remains to be seen whether the boilers will show the requisite durability under service conditions, a point which can best be determined by continued employment for a considerable period of time.

As a description of the "Speedy" appeared in *The Iron Age* of July 13, 1893, it will not be necessary to repeat full particulars concerning her at this time, but, for convenience, a few details may be recalled. She is one of a group of torpedo gunboats known as the "Jason" class, all having like dimensions. Her sister ships, which are fitted with boilers of the locomotive type, are required to develop 3500 indicated horse-power, estimated to give a speed of 19.25 knots. The "Speedy" was to have 4500 indicated horse-power, which was expected to give her a speed of not less than 20.25 knots. Her displacement is 810 tons. She has two sets of triple expansion engines, having cylinders of 22 inches, 34 inches and 51 inches diameter, by 21 inches stroke. The engines were designed to run at a maximum of 250 revolutions per minute, with a steam pressure of 200 pounds per square inch. There are eight water tube boilers, having a total heating surface of 14,720 square feet and a grate surface of 204 square feet. The boilers, when full, weigh about 20 tons less than those of any of the sister ships of the "Speedy."

Owing to the exceptional interest of the steam trials under consideration they were attended not only by representatives of the British Admiralty but also by foreign naval attachés, the engineers-in-chief of the German, Austrian and Italian navies, British naval officers and others.

The first official trial took place on October 3. In from 25 to 30 minutes from the time of lighting fires the steam pressure was 200 pounds per square

inch, and the vessel went to sea for a full power trial under natural draft, the engines being required to develop 2500 indicated horse-power. The trial continued for eight consecutive hours, in deep water, and, according to *The Engineer* of London, gave the following mean results: An ample supply of steam at a pressure of 188.8 pounds per square inch was easily maintained, with a full $\frac{1}{4}$ -inch of air pressure in the fire rooms, and with the vacuum at 27 $\frac{1}{2}$ inches; the engines made 204.6 revolutions per minute, and developed 3048.7 indicated horse-power; the resultant speed of the vessel was 18 $\frac{1}{2}$ knots by log. Although the results were very satisfactory, some little trouble was experienced on this trial owing to the fact that the water used in the boilers was slightly brackish, and it was decided that in any further runs none but distilled or fresh water should be employed for steaming purposes.

A preliminary trial under forced draft on October 20 had to be discontinued owing to the heating of a crank pin. Six days later the official three hours' full power trial under forced draft was attempted and for a time promised to be very successful. With steam at 200 pounds pressure per square inch and the engines making 245 revolutions per minute, for four consecutive half-hours they developed 4564.5, 4674.6, 4685.9 and 4708.1 indicated horse-power, and the ship showed a speed of 21 knots. During the fifth half hour it was found that the boilers were being fed with salt water, caused by a leakage in one of the condensers, and the trial was stopped.

The final official trial, a continuous one of three hours under forced draft, took place on November 7 in very rough weather, and was entirely successful. Steam of a pressure of 193.6 pounds per square inch was maintained, with easy firing of the boilers, by 1.7 inches of air pressure; the starboard engines made 247 and the port 248 revolutions per minute, the vacuums being 27 $\frac{1}{2}$ inches and 27 inches, and the total indicated horse-power developed by them was 4674.7, the speed being 20 knots by log, against a heavy sea and in rather shallow water. There was not the least priming of the boilers, and it was evident that with a greater air pressure a larger power could have been developed without inconvenience.

It is worthy of remark that the navy firemen employed in these very satisfactory trials were men who had no experience with the special type of boiler fitted on board the "Speedy."

The agitation for good roads, originated some time ago by Col. A. A. Pope of Boston, resulted last week in the presentation to the Senate of a monster petition bearing 150,000 signatures praying for the establishment of a national Road Department, similar to the Agricultural Department. The petition was 1400 yards long, and for convenience of carriage was wound around two wheels of a bicycle made of oak, the whole weighing 600 pounds. It was signed by the Governors of 17 States, by the Massachusetts Legislature and other important bodies. It was referred—and wheeled—to the Committee on Interstate Commerce.

An electric motor to be applied to a Gatling gun has lately been designed, which gives promise to partly revolutionize machine gun firing. Although, according to the *Electric Review*, the idea is not a new one, this is said to be

the first time that its application has been successful. The motor is in the breach of the gun and is protected from the enemy's shots by a metal case. It can be detached at any time and a crank substituted. By the motor 3000 shots a minute can be fired, while by the crank the gun will discharge only 1200. The motor is 1 horse-power and is very small, weighing only 50 $\frac{1}{2}$ pounds. It is designed mainly for use with machine guns on shipboard.

The First Wire Rope in the United States

W. A. Roebling of Trenton, N. J., has forwarded to the *Bulletin* of the American Iron and Steel Association the following interesting letter:

The first wire rope in this country was made by John A. Roebling in 1840 at the village of Saxonburg, in Butler County, Pa. The rope was $\frac{1}{2}$ inch in diameter and perhaps 500 feet long, and was used on a subsidiary plane at Johnstown in the same State. It was made of parallel laid wire, and served on the outside with annealed wire. This style of rope did not prove a success because the rope went to pieces as soon as the serving wore out.

The next rope was made for one of the inclined planes of the old Portage Railroad across the Alleghany Mountains. The length of this rope was about 1500 feet, and its diameter 1 $\frac{1}{2}$ inches. It was constructed on correct principles, substantially in the same way that wire rope is made at the present day. It lasted a long time and gave good satisfaction. Its success was the means of introducing wire ropes on the remaining nine planes of the Portage Road. Before wire ropes could be used on these planes it was necessary to rebuild the old inclined plane machinery, which was only adapted for heavy, thick, hemp ropes.

Mr. Roebling made the plans for the new machinery and supervised its erection, and this had much to do with the success of the wire rope. The hardest work was to overcome the opposition of the hemp rope interest. Mr. Roebling had been in the service of the State of Pennsylvania for several years surveying routes for the proposed railroad across the mountains. This gave him a very fair knowledge of the operation of the inclined planes, and resulted in his proposition to substitute wire ropes for hemp ropes. These planes were located in 1825-8 by one of Napoleon's generals—Berthier, I think—who turned engineer in this country. First heavy chains were used, then hemp rope, and then wire rope. Canal boats in sections were taken over the mountains in this way. The planes were abandoned in 1851-2.

The next application of wire rope on a large scale was on the planes of the Morris Canal, in Northern New Jersey, followed soon after by its adoption on the planes of the Delaware & Hudson Canal Company, Pennsylvania Coal Company, and others. In 1848 Mr. Roebling found that most of his business was in the East, and this fact led to the removal of his plant from Butler County to Trenton, N. J.

Benjamin Talbot of Pencoyd, Pa., has been granted a patent for a bottom plate for ingot molds. He uses a strong metal frame to support the mold. Into the center of that frame he pours slag, so that the latter is somewhat smaller in area than that of the ingot.

Annealing Sheet Iron.—I

Past and Present Methods of Annealing Sheet Iron and Preparing it for the Market.

BY AMBROSE BEARD, CAMBRIDGE, OHIO.

Supplementing, the articles which appeared recently in *The Iron Age* under the caption of "Sheet Mill Progress," it is intended now to present a description, together with illustrations,

sheet iron were on the market until early in the eighties.

Terms Used by the Trade.

The variety of terms applied to sheet iron in its progressive conditions toward perfection are always puzzling to a new buyer. He will see specifications reading "B. A." and ask for an explanation. One person will tell him it is "blue annealed," another "black annealed," and yet another "box annealed." As a matter of fact the terms are synonymous, and he will get the same quality no matter under which

equal to "Russia," but as these are manufactured under patents and the processes are justly the property of those who have spent time and energy to develop them the details are kept from the public. The qualities referred to in the subject under consideration are such as are made by the ordinary run of sheet mills.

The Uses of Sheet Iron.

When the fact is taken into consideration that a competent authority places the production of iron and steel sheets within the United States at about 400,000 tons per annum it is very natural to ask the question, "Where does it all go?" It would be difficult to answer this question off hand. The principal uses would soon come into mind—viz.: Galvanizing, for cornices, ornaments and a general line of building material. Next come black sheets for roofing, &c., followed by stove pipe. For the purposes mentioned probably two-thirds of the sheets rolled in a year are used. To find out what becomes of the remaining third we have only to look through *The Iron Age*, and an enumeration like the following will result:

Tin plate consumes a large quantity of black sheets and it is to be hoped that favorable circumstances will help keep up the increase. Then follows perforated sheet steel for use in milling machinery and many other purposes. Carpet tacks made from sheet steel, washers, ferrules, and a hundred and one small things. It is also used for manufacturing blowers, and their pipe connections, smoke stacks, house furnaces, engine jackets and parts of electric dynamos. Large quantities are consumed in making steel wheel barrows, kitchen sinks, frying pans, drip pans, stoves for burning oil or coal and a numerous variety of kitchen utensils. It is part of the construction of the millions of traveling trunks daily transported and is used for making buttons. Handsome sheet steel ceilings can be seen everywhere and plastering lath is made of the same material. Expanded metal in its variety of forms is all made from iron or steel sheets. It is hardly possible to look around without seeing this useful form of iron or steel worked into some serviceable shape and the list of articles into which it is manufactured might be continued *ad infinitum*. The continuous increase in the uses to which this material is put has caused growth of productive capacity to a point supposed by those competent to judge to be a little ahead of requirements. Buyers are more exacting and manufacturers have consequently been obliged to keep pace with the times by turning out sheets of unquestioned good quality and appearance in order to hold their trade. The annealing department is largely responsible for such results. Upon the supposition that the mill has furnished clean sheets, carefully rolled, free from scale marks or buckles, the rest depends upon the annealer and shipper. It is the purpose of this article to explain old and new methods in the finishing process.

Old Style Annealing.

Fig. 1 represents an old style sheet iron annealing furnace. It is also a modern furnace for another use—viz., reheating packs of sheet iron for rolling into light gauges. Formerly it served two purposes, now it serves but one. In the early days of sheet iron rolling in America an extra furnace of this description was in every sheet mill to be used for annealing. In Great Britain this is not the case; there is not usually

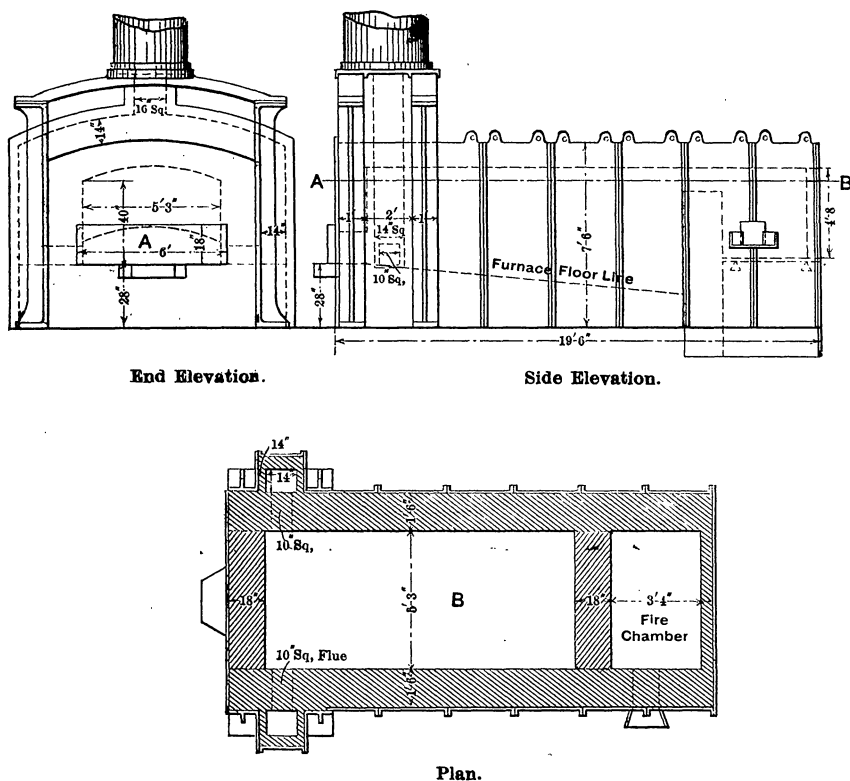


Fig. 1.—Old Style Open Annealing Furnace for Large Sheets.

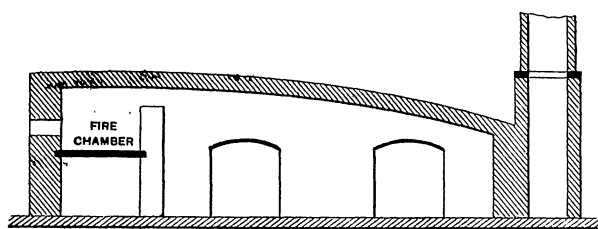


Fig. 2.—Section Old Style Annealing Furnace for Tin Plate.

of old and new methods of annealing sheet iron and preparing it for the market.

The old method of annealing sheet iron, which originated in England, had a few ardent adherents in the United States at a no later date than 1883, but finally it has been entirely dropped, except in annealing heavy gauges—i. e., No. 18 and heavier. These gauges are still annealed in that manner unless otherwise ordered.

The old process was known as "open annealing" and with it followed a train of annoyances in the shape of scaled or burnt sheets that led progressive sheet mill men to adopt other means of annealing or softening and preparing their product for sale. The accepted method was known as "box annealing," and thus it came that the two kinds of

term he orders, the meaning of each being "box annealed," but, as will be hereafter explained, it does not follow that the sheets will be blue or black; they may be gray. Box annealed sheets should, however, under uniform treatment be all of a good dark blue color. To further explain the mystification of terms, "blue annealed" sheets, if of the heavier gauges—i. e., No. 18 and heavier—may be "open annealed" and at the same time "blue." Yet strictly speaking the letters "O. A." should represent their quality. There are many other terms met with, such as "pickled," "P. & C. R.," which means "pickled and cold rolled," "C. R.," meaning "cold rolled." Continuing the variety such terms as "polished," "planished," "glanced," &c., will be met with, all of which represent higher degrees of finish, some

was abandoned by many makers early in the history of the industry in this country. Some of them continued to cling to old traditions until forced to make a change, but the majority readily accepted the new process. The quality of sheets produced under the old plan of working was not satisfactory, and the work could only be done by skilled workmen. In box annealing common labor can be employed, and only one

formed, a saving being effected not only in fuel, but also in labor.

The furnace represented in Fig. 4 is 30 feet long and 6 feet 6 inches wide inside. It will be noticed that there are two fire chambers. From these chambers the flame travels over ports A and is allowed to expand in the intervening space between that and ports B, where it strikes the annealing boxes at the bottom. The bulk of flame

strikes the annealing boxes with its initial force before expansion and as a result boxes are badly burned and cracked when only a short time in use. It is justly claimed as a result of experience that nearly the very last unit of heat can be used in a furnace constructed in this manner. The additional room given for the expansion of the flame causes more gas to form and combustion is more perfect. In evidence of this it may be stated that smoke disappears in a few minutes after a new fire is put on. To make success more certain in operating a furnace of this design a steam jet should be introduced below the grate and the ash pit closed with tightly fitting doors, and the stoke hole should also be kept closed. An important point in favor of a furnace of this design is the arrangement for operating two furnaces with only one smoke stack. By adopting this plan a large space is left between the two furnaces, in which the crane used to hoist boxes is placed, and it also serves as a storage place for boxes not in use. If it is desired to place the furnaces in line with each other, the smoke stack may be placed between the two fire chambers as in Fig. 3 and connected by return flues, but these are always a source of trouble, as they become filled with dust and require constant cleansing.

The Columbian meeting of the Ohio Institute of Mining Engineers will be held at Columbus, Ohio, beginning at 7 p.m., on Wednesday, January 17. There will be forenoon, afternoon and evening meetings on Thursday and Friday. There will be a free excursion to Congo, in Perry County, with a view of visiting the new and modern equipped mine of H. D. Turney & Co. The secretary has already been notified of the following papers to be read at the meeting: "Some Notes on the Work of the United States Coast Survey in Southeast Alaska," accompanied by stereopticon views, by Prof. Henry C. Lord; "The Mining and Ventilation of the Monoga Mines in Marion County, W. Va.," by Thos. Middleton; "The Clays of Ohio and Their Manufacture," by Edward Orton, Jr.; "The Development and Equipment of the Congo Mine in Perry County, Ohio," by Frank A. Ray, engineer in charge, Congo, Ohio; "Experience with Mines which Generate Fire Damp in the Connellsville Coke Region," by Hon. Frederick Keighley, ex-inspector of Mines and now superintendent Oliver Coke Works, Uniontown, Pa.; "On the Barker Self Acting Tipple," by Henry H. Morrison, Cleveland, Ohio; "The Mine Foreman and His Duties," by William Hibbs, Scio, Harrison County, Ohio; "The Recent Development of the No. 2 Coal in Jackson County, Ohio," by J. A. Ede, Jackson, Ohio; "What I Saw in the Connellsville Coke Regions," by Capt. J. L. Morris, Canal Dover, Ohio; "Compressed Air and the Economy in Its Use as a Power," by J. L. Mitchell, Cape Breton, N. S., and "The Grouping of the Coal Strata," by E. B. Willard, Hanging Rock, Ohio. This paper was read at the last meeting, but will be re-read and discussed by Professor Orton, State Geologist, in accord with a resolution to that effect passed by the institute.

A novel method of coating iron with magnetic oxide has been introduced by P. H. Bertrand of Paris, to whom an American patent has been recently

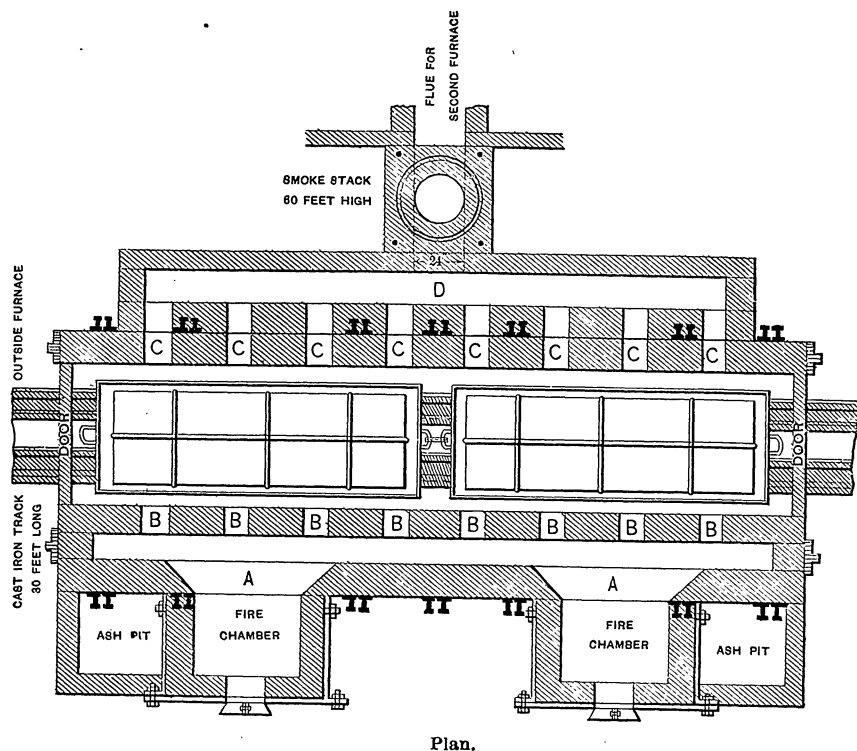


Fig. 4.—Double Box Annealing Furnace.—To be Built in Pairs and Operated by Only One Smoke Stack.

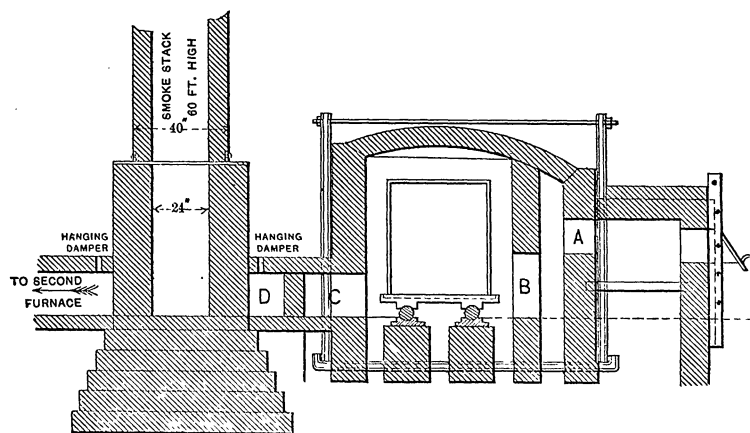


Fig. 4.—Section through Smoke Stack.

skilled workman is needed to superintend the operations, no matter on how large a scale they are conducted. Large quantities are annealed at one time, and the general expense is less, while a far superior product is obtained.

To illustrate the variety of improved methods in box annealing three drawings are shown. Fig. 3 represents a type of furnace that has been used successfully; the drawing is self explanatory and is accompanied by another design, Fig. 4. Each of these furnaces is what is known as a double annealing furnace; two boxes are drawn into the furnace together and with a slight increase in firing area over a single furnace, twice the amount of work is per-

travels upward, following the arch of the furnace, and completely envelops the box; at the same time part of the heat travels under the carrier and thus a perfect distribution is effected. The flames pass out through the small ports C, and should it be found that heat is being concentrated in any part of the furnace in too great a degree, it can be regulated by placing fire brick in any of the ports C. Passing through these ports into flue D smoke escapes to the stack. At a point near the smoke stack a hanging damper is placed on a pulley to regulate the heat of the furnace. In the old style of box annealing furnaces the space between ports A and B is not allowed. Instead of this, the flame

granted. He first deposits upon the articles a thin layer of a metal or alloy, which volatilizes at a temperature of about 1000° F., and heats them to the temperature at which a coating of magnetic oxide is formed on them.

New Passenger Boats for the Lakes.

The Northern Steamship Company, which is affiliated with the Great Northern Railway, will put into service in June, 1894, a number of passenger boats, now being built at the Globe Iron Works Company, Cleveland. The vessels will make the run between Buffalo and Duluth, a distance of about 1100 miles, in less than 60 hours, touching at Cleveland, Detroit and Sault Ste. Marie.

The general dimensions of the hull are as follows: Length over all, 383 feet; length between perpendiculars, 360 feet; breadth, molded, 44 feet; depth, molded, 26 feet; depth to spar deck, 34 feet 5 inches.

The vessels have been built of mild steel throughout, with an inner bottom extending from the collision bulkhead forward to the afterpeak bulkhead aft. They have been built under special survey in order to obtain the highest classification in the United States standard rules. The hull has been specially strengthened and subdivided through transverse and longitudinal bulkheads into numerous water tight compartments, several of these bulkheads extending to the spar deck, without any doors or openings cut through, and where it has been found necessary to have passages through the bulkheads specially designed water tight doors have been fitted which can readily be closed in case of emergency.

The design of the hull is a novel departure from the system generally used for high speed twin screw steamers, as instead of carrying the after lengths of the shafts through the ship sides, and consequently have them exposed and unsupported for a considerable length, the hull in this case has been constructed around the shafts in such a way as to give not only great strength to the after body of the vessel, but also to form as little resistance as possible and allow the water to pass freely to the wheels.

The interior of the hull has been constructed to meet the requirements necessary for the Belleville boilers, which are placed about amidships in three separate water tight compartments. Alongside of the thwartship stokeholds are the coal bunkers, which extend longitudinally through the different boiler spaces, and are capable of holding 1000 tons of coal. The arrangements for coaling have received special attention, and in order to reduce the time necessary for that purpose to a minimum the coaling hatches have been trunked in, and the bottom of each trunk is formed into four sloping coal chutes, each leading into a different coal bunker. The coal being thus directed in its fall will spread itself uniformly over the bunkers, thereby obviating the necessity of trimming the coal to any great extent.

These vessels are fitted with two vertical quadruple expansion engines of 3500 horse power each. The sizes of the cylinders are 25 inches for the high, 36 inches for the first intermediate, 51½ inches for the second intermediate and 74 inches for the low pressure, with a stroke of 43 inches. Piston valves are used on all of the cylinders; one for the high, two for the first intermediate, two

for the second intermediate and two for the low pressure, arranged outboard on the working side. All are operated by the Joy valve gear and reversed direct by steam and hydraulic gear. The reverse arms are slotted and are fitted with blocks and adjusting screws. The engine columns on the back or inboard side are of cast iron, forked and of box section, and are braced together by cast iron flanged distance pieces. The columns are fitted with detachable water-back guide faces. The front columns are of turned wrought iron, to which are attached by brackets the reverse shaft and link for the valve gear. The cylinders are without jackets or liners, and the valve chests are connected by faced joints and turned bolts. The low pressure and second intermediate pressure cylinders are fitted with cone shaped, disk steel pistons, and the first intermediate pressure and high pressure cylinders have cast iron pistons, all of which are fitted with followers and single ring packing set out with flat bent springs. The piston rods are of steel, but do not extend through the top cylinder head and are secured to the piston head by quick taper and nut.

The propeller wheels are four bladed, sectional, 13 feet diameter and 18 feet pitch. The blades are of cast iron and have an expanded pitch. The wheels are right and left and fitted to the tail shaft with taper, key and nut. The engines are fitted complete with relief valves at each end of the cylinders and in receiver chest, and drain valves are fitted to the bottom of cylinders and valve chests, and arranged to be handled from the working platform. The air pump and condenser are detached from the main engine and are of the vertical compound and direct connected type; size of steam cylinders, 15-inch high pressure, 30 inch low pressure, by a stroke of 18 inches. The air pumps are single acting, 38-inch bore by an 18-inch stroke.

The engines, when turning 120 revolutions per minute, will indicate 3500 horse-power each, and with a total horse-power of 7000 the vessel is expected to make an average speed of over 20 statute miles per hour.

The boilers are the Belleville patent water tube system. Their nominal evaporative efficiency will give the main engine 7000 horse-power and to the auxiliaries 500 horse-power more, with natural draft. The boiler power is divided into three groups of generators. Each group is inclosed between athwartship and longitudinal bulkheads. There are two groups of ten and one group of eight generators. Each group has its own smokestack, so that the vessel will be a three-pipe boat. Each group has two fire rooms connected by a cross passage.

Each smoke pipe and its outer pipe is inclosed within iron bulkheads both fore and aft and athwartships. The outside casing of the smoke pipe is large enough to give ample area for a free exit of the heat of the fire rooms, while a supply and circulation is given by fan blowers delivering into the open fire rooms. By an arrangement of the air pipes a suitable number of air jets are directed so as to induce circulation toward and into the ash pits, at the same time creating a cooling current for the benefit of the stokers.

The Belleville system embraces several important improvements in boiler attachments, such as a separator of the steam and water, a purifier of the feed water which deposits lime or other calcareous matter into a sediment chamber, so that the feed water enters the elements in a

pure state; an automatic regulator of the feed water by which only the water vaporized is supplied to the boiler. All these are embodied in the present construction, which also embraces Belleville's system of constant test of strength of material and of the joints. All material is subjected to 800 pounds hydrostatic pressure in the rough and when machined and jointed a final test of 650 pounds—to be absolutely tight at this last test. The boilers will be fitted with the *Ætna* shaking grates. The fittings, such as valves, cocks, &c., are made specially for the high boiler pressure of the 250 to 300 pounds it is designed to carry.

The boats are equipped with an electric light plant and a De La Vergne refrigerating plant.

Treasury Decisions.

Charcoal Bar Iron—Application of second proviso in paragraph 136, N. T.

Before the U. S. General Appraisers at New York, November 28, 1893. In the matter of the protest, 21,451b-10,889, of S. D. Kimbark, against the decision of the Collector of Customs at Chicago as to the rate and amount of duties chargeable on certain charcoal bar iron imported per "Norge," December 17, 1892. Opinion by Wilkinson General Appraiser.

The merchandise covered by the protest is charcoal bar iron over 1½ inch in diameter, costing about \$36 a ton. It was assessed with duty at 1.1 cents a pound under paragraph 136, N. T., and is claimed to be dutiable at \$22 a ton under the same paragraph.

Paragraph 136 is as follows:

"Round iron, in coils or rods, less than 1½ inch in diameter, and bars or shapes of rolled iron, not specially provided for in this act, 1½ cents per pound: Provided, That all iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig iron, except castings, shall be rated as iron in bars, and be subject to a duty of 1½ cent per pound, and none of the iron above enumerated in this paragraph shall pay a less rate of duty than 35 per centum ad valorem: Provided further, That all iron bars, blooms, billets, or sizes or shapes of any kind, in the manufacture of which charcoal is used as fuel, shall be subject to a duty of not less than \$22 per ton."

As a duty of 1.1 cents per pound is \$24.64 a ton, it is clear that the second proviso can apply only to the iron named in the first proviso, and not to that covered by the first portion of the paragraph.

We find that the bar iron in question is not less finished than iron in bars. The protest is overruled accordingly.

With the object of preventing a threatened strike the receivers of the Northern Pacific Railroad last week resorted to the somewhat unique method of serving on their employees an order obtained from the United States Court at Milwaukee, authorizing and directing the receivers to put into operation the new schedule of wages, and enjoining the employees and their unions from "combining and conspiring to quit, with or without notice, the service of the road, with the object of crippling or embarrassing its operation, and generally from interfering with the officers and agents of the receivers or their employees in any manner by actual violence, intimidation, threats or otherwise." Writs of injunction were at the same time served on Chief Arthur and the other officers of the Brotherhood of Locomotive Engineers.

The Ideal Engine Connected Direct to Dynamo.

The state of perfection at which the latest types of steam engines have arrived is shown in nothing so clearly as in the increasing demand for automatic types of engines to be direct connected to dynamos. The fluctuations in load, especially in street car service, are so great and so numerous—fluctuations of 25 to 100 per cent. of the entire load occurring almost instantaneously—that it has taxed the inventive genius of our engine builders to the utmost to produce engines that will stand the strain. In the case of belt driven dynamos, a severe short circuit will usually cause the belt to fly off and thus relieve the engine, but a direct connected engine must not only be able to maintain a

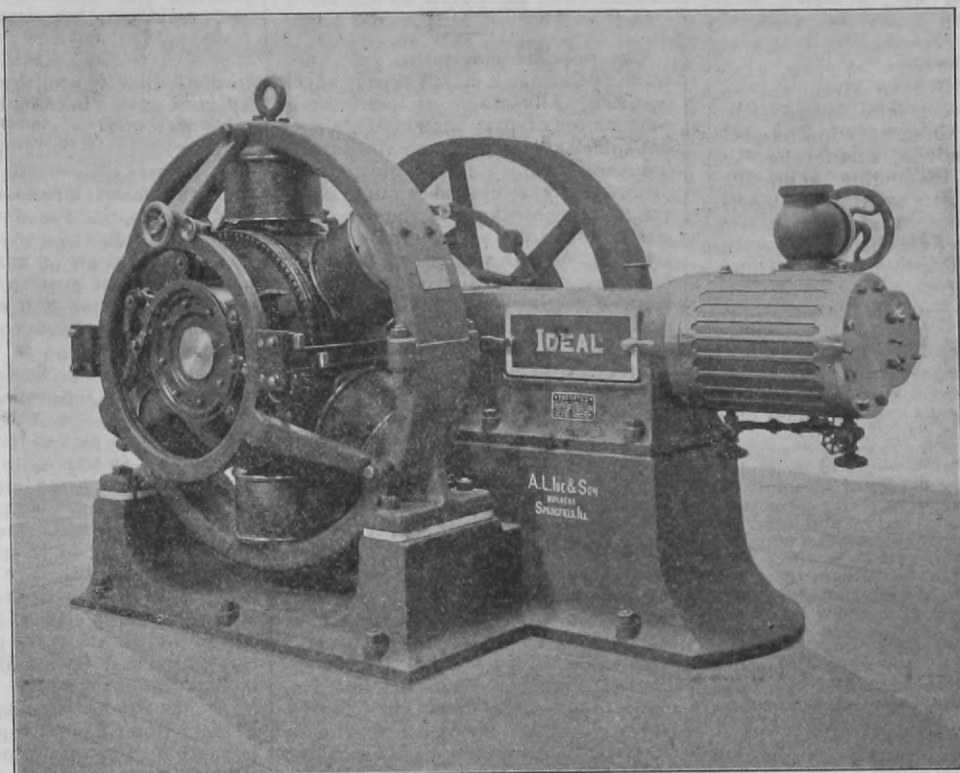
pulley. The construction of the armature and engine are such that no out-board bearing is required. The two 14 x 14 engines are to drive dynamos belted from the governor pulleys, in addition to the direct connected armatures.

The builders claim that these engines will not vary over 1 per cent. in speed for a sudden change from no load to full load. They are self-contained and balanced. Every engine was adjusted before leaving the works to run at its specified speed under full load and is balanced to run without shaking with all anchor bolts removed. The engines are provided with the Ideal system of self oiling, which supplies all working parts with a constant stream of oil that is used over and over again. There is positively no oil scattered in any direction. The armatures are therefore en-

NEW PUBLICATIONS.

THE CONSTRUCTOR. A Hand Book of Machine Design. By F. Reuleaux. Authorized translation by N. H. Supplee. Philadelphia, Pa.

To the earlier generation of engineers who were forced to go to Europe in order to acquire a theoretical education in engineering, Reuleaux's "Construc-teur" is a very familiar work. Very few text books of that period, like Weisbach and Reuleaux, have survived, and the latter, more even than the former, has expanded and improved with the enormous development of the industry whose progress it did so much to promote. Those who used the relatively slender volume which represented the earliest edition will be somewhat surprised at the growth of the work, which contains



THE IDEAL ENGINE CONNECTED DIRECT TO DYNAMO.

uniform speed under these sudden changes of load, but it must not fly to pieces if a short circuit brings the engine to a sudden stand still. That the day of the slow speed engines with dangerous fly wheels is past for electrical work is widely acknowledged. Where space is not very valuable, dynamos belted to high speed engines will continue to be used, but where space becomes a matter for grave consideration, the future demand must be for direct connected engines as soon as engine builders can supply a suitable engine.

To meet this demand the engine shown in the accompanying cut has been built by A. L. Ide & Son of Springfield, Ill. The illustration is taken from one of three Ideal engines shipped by them for use in lighting the new Southern Hotel in St. Louis. Two of these engines had 14 x 14 cylinders; the third had a 13 x 12 cylinder. All were regulated to run at 275 revolutions. Each of these engines had a General Electric Company's armature keyed on the crank shaft in place of the plain

tirely free from any danger that could result from a splash of oil. The 14 x 14 engines with armatures attached complete, as shown in the illustration, can each be placed in a box 68 inches high, 81 inches wide, 10 feet and 3 inches long, and their rated horse-power is 125. The 13 x 12 engine, 100 horse-power, can be placed in a box 68 x 74 x 9 feet and 11 inches.

Great Britain's foreign trade was even worse last year than was that of 1892, which was regarded as a very unfavorable year. In the first 11 months of 1893 imports declined over \$84,000,000 as compared with the corresponding period of 1892, while exports were reduced \$31,200,000, of which \$10,800,000 was directly due to the coal strike, representing the decline in value of coal exports. Indirectly the coal strike is held responsible for nearly all the balance of loss, as previous to its occurrence encouraging signs of a revival of trade had already become apparent in most of the industries affected.

many new chapters and is considerably elaborated. The methods pursued by Professor Reuleaux to arrive at safe dimensions of constructive details are not generally familiar to American engineers, and many of them will acknowledge to Mr. Supplee their indebtedness for the laborious work of translation which he has undertaken. Since his work has the full indorsement of the German professor, readers may feel confident that the version now presented is accurate and represents Mr. Reuleaux's latest views.

Naturally by far the greater part of the work is taken up with the description and discussion of constructive details and machine elements, and, of course, it bears almost exclusively the imprint of the study of European authorities and examples. Unless we are much mistaken, the translator has tried to infuse into it some references to American practice, but has quite properly not gone very far in that direction. To Americans that will not prove any drawback, since they are likely to seek rather for the best of European methods

for comparison with their own accumulated experience than be told at long range about their own work. The translation of Reuleaux's work is a real acquisition to American literature.

MINERAL RESOURCES OF THE UNITED STATES. By David T. Day, Chief of Division of Mining Statistics and Technology. Published by the United States Geological Survey. Price, 50 cents.

The ninth in the series of statistical volumes relating to the mineral resources of this country has just been issued. It covers the year 1892. Quite a number of reviews by well-known specialists who have been contributors for a number of years have been issued some time since in pamphlet form. Among them we may mention "Iron Ore," by John Birkinbine of Philadelphia, and "Coal," by E. W. Parker of Washington. James M. Swank, general manager of the American Iron and Steel Association, leads off with a review of the American iron trade in 1892. Mr. Birkinbine's contribution, already alluded to, following. Among the few geologists who have given thorough attention to economical questions is S. F. Emmons, whose work in connection with the Leadville district has been widely and thoroughly appreciated. Mr. Emmons goes over the development of our precious metal industry since 1880, and in a final chapter peers into the future. Coming from so high an authority his conclusions are of special interest. We quote the following paragraphs:

That the industry, as a whole, has progressed in spite of a continuous fall in the value of the product has been mainly due to the fact that the larger reduction works, under the spur of the necessity of rendering the large capital invested in their plants productive, have displayed ingenuity and economy in improving their processes and in reducing the cost of fuel and other materials, so as to leave them still a margin of profit. The smaller profit is offset in the case of the larger smelters by the greater number of tons treated, and also by the utilization of other products besides the precious metals, such as lead and copper. As long, therefore, as these larger smelters can obtain even a very small profit silver mining will be continued in the larger mines and in those whose ore is exceptionally high grade, while the smaller and less favorably situated mines will gradually be abandoned. It is to be assumed, moreover, that self interest will induce the miners to consent to a reduction in wages when it becomes a question of that or nothing, and thus a still longer lease of life will be given to some established mines in the face of a continuous reduction in the price of silver; but when this price shall have fallen so far, without a counterbalancing rise in the price of lead and copper, that the larger smelting works are obliged to close, silver mining will be abandoned throughout the greater part of the Western region. This exigency is not, however, likely to occur while the price fluctuates, as it has done during the past year, between 70 and 80 cents per ounce.

Assuming that silver continues at about these prices, it is probable that the greater part of the silver product of the country will come from Colorado, Montana, Utah, Idaho, Nevada, New Mexico and Arizona, in the order named, and will gradually be reduced to between \$30,000,000 and \$40,000,000 annually.

The annual gold product, on the other hand, is likely to see a steady increase to \$40,000,000, and perhaps beyond, and its principal producers will be the following States and Territories, also in the order named: California, Colorado, Dakota, Montana, Idaho, Oregon, Alaska, Arizona, with a great deal of uncertainty as to the relative rank of the smaller producers.

Copper, lead and zinc are treated on familiar lines by C. Kirchhoff of New York, while George F. Becker, one of the geologists of the survey, who was the author of a valuable monograph on

the quicksilver deposits of the Pacific Slope, deals with the quicksilver industry; Jos. D. Weeks of Pittsburgh has continued his able work on domestic and foreign manganese ores, on the manufacture of coke, on petroleum and on natural gas. He values the consumption of the latter in 1892 at \$14,800,714. A new contributor, on a particularly interesting subject, is Alfred E. Hunt of Pittsburgh on aluminum. Important data are submitted concerning the American deposits of bauxite and the production in 1892. Robert T. Hill deals with the clay materials of the United States, Spence B. Newberry with natural and artificial cements, and George F. Kunz with precious stones. E. W. Parker reviews developments in abrasive materials, sulphur and other articles.

The Chicago Iron Trade in 1892.

The imperial progress of the iron trade of Chicago received a rude check in 1892. Advantages of location and the prestige of past achievements were not sufficient to overcome the adverse influences with which the entire trade of the country struggled throughout the year. In the whole 11 months there was not a redeeming feature to enliven the situation. During previous periods of depression there had always been more or less reaction from the monotony of dull trade, but last year was a signal exception. Changes of seasons brought no relief. The gloom of winter was succeeded by a cheerless spring, to which followed a summer of absolute prostration in every line, while autumn proved to be a period of unfulfilled hopes merely paying the way to the present discouraging winter. For a considerable portion of the year not a single blast furnace was in operation and there were times when every rolling mill in the Chicago district was shut down. One of the largest steel works in the city and in the country was unable to turn a wheel in the entire 12 months. Foundries and machine shops were forced to close by scores, despite the most strenuous efforts of their owners to secure orders. The depression in trade extended to minor manufacturing establishments in as great a degree, and those continuing in operation reported an appalling decline in their volume of business. Failures were frequent, but it can be said truthfully that they have not been so numerous as might have been expected under the circumstances. In the majority of cases manufacturers had wisely prepared for a year of bad trade and were therefore able to endure the pressure of hard times and diminished receipts.

The World's Fair had been expected to impart some stimulus to the local iron trade, but in this respect it was a failure. The buildings consumed large quantities of iron and steel, but distant works were the beneficiaries. Improvements on a huge scale were undertaken in Chicago and near it to meet the requirements of the multitude of visitors, but Chicago iron and steel entered only slightly into their construction. Much business had been counted upon from Western railroads in making preparations for World's Fair travel, but it was not great enough to be appreciably felt even by the establishments directly interested. In one respect only, but nevertheless quite important, the Chicago iron trade was

benefited, although merely in common with all other Chicago business interests. The inpour of cash from World's Fair visitors enabled the banks of the city to continue currency payments when in almost every other section of the country currency was at a premium and substitutes of various kinds were in circulation. At no time, even when the financial panic was at its height, did Chicago banks limit the currency to be drawn out by depositors, and currency brokers were unknown.

In the line of structural work a great deal was accomplished in Chicago in 1893. Magnificent additions were made to the large number of great office buildings and hotels. A great deal of elevated railroad structure was erected. The South Side and the Lake street roads were completed and put in operation, and much of the Metropolitan West Side road was built. The consumption of iron and steel for structural purposes surpassed that of any previous year, owing to these important undertakings. It is not likely that the record thus made will be rivaled in the near future. Elevated railroad building will be prosecuted in 1894, but not to so great an extent as in 1893, while the number of large buildings undertaken will be very few until investors perceive that more office room is desirable. Ambitious projects in the line of railroad terminals and great warehouses, which at one time promised fulfillment and would have required vast quantities of structural iron and steel, are dormant if not abandoned. The great business in this line in 1893, it must also be stated, benefited distant mills much more than those of Chicago, which were shut down for lack of work during the greater part of the year.

Although an unpropitious period for new enterprises, some important manufacturing projects were undertaken, others which had previously been started were pushed to completion, and some old established concerns made notable expansions in their plant. In the first of these classes, and the most important of all, is the great works of the Whitman & Barnes Mfg. Company, at West Pullman, which will consume large quantities of iron and steel. The Phoenix Horse Shoe Company, at Joliet, is another enterprise now about completed whose projectors were not dismayed by the dismal outlook for immediate business, but were animated by faith in better times to come. The Chicago Horseshoe Company, at East Chicago, whose beginning dates back to a period of cloudless financial skies, persisted in their work of preparation and have already gained a footing in the market. Fraser & Chalmers, the Plano Mfg. Company, the Walburn-Swenson Company, the Island Steel Company, the Canedy-Otto Mfg. Company and others made great improvements in their facilities in new locations from those in which the works grew up. Some few enterprises which have been undertaken are languishing or have been temporarily abandoned, but the near future will see all of these completed, unless some more serious calamity than has yet occurred should befall the country.

Pig Iron.

January and February were the best months of the entire year in the coke pig iron trade for both volume of business and prices. Manufacturers were anxious to make sales, and the concessions given to consumers led to heavy purchases, as the prices made were lower than ever before known at that

season. The shadow of the approaching panic was then visible, but it had been so long since business men had experienced a severe financial crisis that they were unwilling to believe that it could shatter the apparently firm foundation on which trade, and especially Western trade, rested. Contracts were made at this time for long delivery which were canceled or repudiated not many weeks later. The low prices of January and February proved to be quite high in the light of subsequent events. In March the Southern furnace companies pretty generally reduced their prices, which had up to that time been above the ruling rates on local iron. This month was further memorable for the reduction of freight rates on pig iron from Chicago to Northwestern points. For the first time the local railroads recognized the justice of the claims made by local furnacemen that too great a discrimination was made in favor of Southern pig iron on through bills of lading. The reduction, however, only partially removed the discrimination, and the *pro rata* on Southern iron from Chicago to the Northwest is still considerably lower than the freight charged on business originating at Chicago.

In April a serious strike was inaugurated by the Chicago molders, which continued until nearly June 1, and greatly restricted the consumption of pig iron. In the light of subsequent developments this strike now appears almost grotesque. The molders demanded a minimum of \$2.75 per day, which was an advance of 25 cents per day to most day workers, and on piece work they asked an advance of 10 per cent. Foundrymen having contracts which they were obliged to fill conceded the advance, but most of them successfully resisted it, even if they had to discontinue operations. It is worthy of remark that in some of these foundries later in the year molders were glad to secure employment at much lower wages, some of them taking down to \$1.25 per day. The strike precipitated a number of failures among foundrymen. In June several important bank failures occurred, savings banks were subjected to serious runs, and financial institutions generally restricted accommodations to manufacturers, and their inability to discount the paper of their customers caused a rapid curtailment of operations. Failures of steel works cut off an outside market for Bessemer pig iron which was of some importance to local furnacemen. From this time until September business was stagnant except for a brief period in the latter part of June, when agricultural implement manufacturers placed large contracts for their year's supply. Usually these contracts have been the forerunners of heavy trade with other consuming interests, but 1893 was an exception, the general market being uninfluenced.

In July occurred the failure of Forsythe, Hyde & Co., pig iron merchants, whose operations had been remarkably expanded through a connection with Ferdinand Schlsinger of Milwaukee. The embarrassment of this enterprising iron ore operator brought disaster to those with whom he was allied, and the crash intensified the weakness in the Chicago iron market. Bankrupt stocks of pig iron, either hypothecated by the makers or held by assignees of insolvent foundrymen, now began to seek buyers, and very low prices were made. Currency was scarce, and cash buyers almost made their own prices. Local furnaces were blown out, as stocks were

accumulating heavily through the narrowing of the market and the canceling of orders, as well as the postponement of deliveries asked for by other consumers. September witnessed an improved feeling in the trade, as liquidation was then about over, currency was more abundant, banks were more generously extending accommodations and collections were much easier. The national House of Representatives had passed the bill to repeal the silver purchase clause of the Sherman act, and it was hoped that the Senate would quickly follow the action of the House.

The silver question at this time so engrossed public attention that other important matters were obscured, and the silver purchase repeal bill was held up as the one thing necessary to restore confidence. The prospect of its early passage caused considerable buying among pig iron consumers, and for a short time there was almost a feeling of buoyancy. Rolling mills which had been closed down since July 1 made an effort to start, and manufacturing establishments generally began to feel the stimulus of reviving confidence among their customers. But the improvement gradually faded as the Senate entered upon what seemed to be an endless discussion, and as the chances gradually favored either a victory by the silver men or a compromise which would amount to a defeat of the repealers.

October was a month of gloom. Prices were then made on current business at so low a rate that terms were kept scrupulously private. The passage of the silver repeal bill fell flat, as the application of the remedy to the nation's disease had been too long deferred. There was some improvement in the demand in November, but disturbing influences were again felt. A reduction was made in the freight rate on Southern pig iron, and the fact also became known that a tariff bill was in preparation which would propose a heavy cut in duties. December was a quiet month, notwithstanding the effort of some Southern companies to scare consumers into buying by announcing heavy sales in other markets and advancing their quotations.

The Lake Superior charcoal iron trade in 1893 was a disappointment to all concerned. Early in the year the statistical condition of the trade was strongly in favor of a very great improvement as compared with preceding years. It was shown that the consumption of 1892 had been in excess of the production, and that stocks had been drawn upon to some extent. The production of 1893 was foreseen to run lower considerably than that of 1892, and even if consumption fell off to some extent, it would be more than counterbalanced by the diminished output. But the falling off in business was beyond all anticipation. Car-building almost ceased and car wheel works consumed but a fraction of their previous yearly requirements. Malleable foundries did much less than had been expected, and the absence of their great season contracts withdrew a most important element from the charcoal iron market. Agricultural implement establishments also bought but sparingly. As to general foundries, they had almost, if not entirely, ceased to use charcoal iron in previous years except in localities near charcoal furnaces. Probably never since the production of charcoal pig iron has been a feature of the iron trade of the Northwest was so small a quantity sold in Chicago as in 1893. There will unquestionably be a reaction from this

state of affairs, but it is the opinion of the members of the trade that the use of charcoal iron is diminishing through the operation of other influences than the depression in general business, and that it will never again wholly recover lost ground. Consumers are learning more and more how to substitute coke pig iron even in the production of car wheels and malleable castings, and charcoal pig iron cannot be marketed at a competitive price.

In accordance with the usual custom in this review, a table has been prepared, averaged monthly from our weekly quotations, showing the range of prices at Chicago on leading brands of pig iron during the year. This table, however, is less accurate than for previous years, as it does not reflect the transactions known to have been made at cut prices when the condition of business was most demoralized. No. 1 local coke, having been in but moderate supply during the year, was conspicuously firm. The sharpest competition occurred on Nos. 2 and 3, especially when sellers entered a contest for desirable orders with Southern makers. Some brands of Ohio softeners were also sold considerably under regular quotations. Following is the table:

Months.	Local	Lake Su-	Ohio	South-
	coke	perior	soft,	ern
	No. 1.	char-	No. 1.	No. 2.
		coal.		
January.....	\$14.00	\$16.50	\$16.50	\$13.75
February.....	13.75	16.50	16.50	13.50
March.....	11.50	16.50	16.25	13.25
April.....	14.00	16.60	16.25	13.00
May.....	14.00	16.50	16.25	13.00
June.....	14.00	16.40	16.25	12.75
July.....	13.50	16.00	16.00	12.75
August.....	13.50	16.00	16.00	12.75
September.....	13.50	16.00	15.75	12.50
October.....	13.50	16.00	15.75	12.50
November.....	13.50	15.75	15.75	12.25
December.....	13.50	15.50	15.75	11.75
Av'ge for year..	13.75	16.12½	16.00	12.75
Av'ge for 1892..	14.50	16.75	16.75	14.00
Av'ge for 1891..	15.50	17.37½	18.00	15.00
Av'ge for 1890..	17.10	20.75	20.00	15.25
Av'ge for 1889..	16.75	19.37½	18.75	15.75

Finished Iron and Steel.

The course of trade in finished iron and steel seriously disappointed manufacturers and jobbers. They had reason to expect a good business from car builders and implement manufacturers, as well as wagon and carriage makers, while machinery builders were also well employed and minor manufacturers were fairly active at the beginning of the year with good prospects for the future. New establishments consuming iron and steel had been started in the vicinity of Chicago, and it seemed destined to be a better market than ever. The very heavy contracts placed for elevated railroad work and for new office buildings and hotels, as well as for material needed in preparing for the World's Fair gave outside mills so much to do that their competition was expected to be considerably lessened on new orders which might come up. The good crops of the previous year were expected to provide Western railroads with sufficient freight to keep them in fair condition, and farmers were known to be generally paying off their indebtedness and accumulating bank accounts. A good foundation, therefore, existed on which to base an estimate of an excellent business with manufacturing consumers intimately identified with farmers' interests. But falling prices for grain caused farmers to hold such stocks as they were able to carry, and as the year progressed it was found that railroad earnings were decreasing. The low price of silver affected the mining interests in the far West and cut down a profitable source of railroad traffic. The financial panic then intervened and

stopped the wheels of many manufacturing consumers. The World's Fair for a long time after its beginning attracted local visitors only, and was of little benefit to railroads, whose managers, however, stubbornly maintained high rates of fare until but a few weeks before the close. Railroad purchasing agents were thus compelled to enforce economies and the car builders suffered. The economies instituted by farmers were felt by the implement manufacturers, but not to so great an extent as by the carriage and wagon makers, whose business for a time was almost destroyed.

Prices of finished iron and steel steadily dropped under the diminishing demand until July 1, when a general shut down of rolling mills took place, pending the annual settlement of the wages scale. The cessation of production was hailed as a relief to an overburdened market, and as it was generally believed that the stoppage would continue for more than a month an improvement in business was looked for in August, or at the furthest in September. But there was no improvement and consequently no general resumption of work by the mills as in previous years. They straggled into line slowly and ran spasmodically, but meantime vigorously endeavoring to secure business by reducing prices. The consequence was that at the close of the year the lowest prices prevailed on all classes of finished iron and steel ever known in the Chicago market.

A special feature of the bar iron trade has been the increasing displacement of iron by steel. The bar trade is almost the last stronghold of iron, and while the supremacy of iron has long been threatened by steel even in this line, yet conditions have been such that until very recently in this market bar iron has sold in larger quantities than soft steel bars. The great reduction in the price of billets, however, and the comparative ease with which all billet makers now seem to be able to produce soft steel have induced bar iron makers to give more consideration to steel, especially as they find that they can considerably increase their output on a train of rolls with less waste of metal and smaller crop ends. At the same time consumers are assisting in the work of substituting steel by ordering it more freely. Within the past two or three months this change in the practice of consumers has been most marked. Some manufacturers are now quoting common bar iron and soft steel bars at the same price, and do not hesitate to express the opinion that in the near future steel will sell at a lower price than iron. The following table shows the course of prices on several kinds of finished iron and steel, averaged monthly from weekly reports, based on mill shipments, Chicago delivery:

Months.	Common bar iron. Cents.	Soft steel bars. Cents.	Ang. gels. Cents.	No. 27 common sheets. Cents.
January.....	1.57½	1.70	1.95	2.90
February.....	1.55	1.65	1.90	2.87½
March.....	1.57½	1.65	1.90	2.85
April.....	1.52½	1.67½	1.90	2.85
May.....	1.50	1.62½	1.90	2.85
June.....	1.47½	1.60	1.80	2.85
July.....	1.47½	1.65	1.77½	2.85
August.....	1.45	1.62½	1.77½	2.85
September.....	1.47½	1.60	1.77½	2.80
October.....	1.45	1.52½	1.77½	2.77½
November.....	1.40	1.47½	1.70	2.75
December.....	1.35	1.40	1.62½	2.67½
Av'ge for year....	1.47½	1.60	1.82½	2.82½
Av'ge for 1892.....	1.62½	1.75	1.97½	2.90
Av'ge for 1891.....	1.70	...	2.17	2.95
Av'ge for 1890.....	1.82	...	2.37½	3.17
Av'ge for 1889.....	1.68	...	2.20	3.21

Merchant Steel.

Competition on high grades of smooth finished machinery and open-hearth spring steel was less keen than in previous years. This is due to the diminished number of establishments manufacturing products of this character. Some large makers, who cut an important figure in the market in past years and set the pace for others, have withdrawn from the field to devote their energies to lines of trade handling larger masses, while others have failed or their works have burned and were not rebuilt. Consequently the merchant steel trade has not suffered so severely as some others, although prices receded in sympathy with the general market. The consumption for 1893 was considerably under that for 1892, and contracts for the coming year which have thus far been placed show a further falling off. The merchant steel manufacturers are deeply interested in the proposed abandonment of all duties on agricultural implements, and await the developments in that direction with much anxiety. If there should be a movement to duplicate popular patterns of American farm machinery abroad, for the purpose of invading this market, it will mean important reductions in the price of materials consumed by the American makers to resist the invasion. The following table shows the course of prices on mill lots, Chicago delivery, except on tool steel, which is almost exclusively sold from warehouse:

Months.	O. H. Cent.	O. H. machin- ery. Cent.	Ordinary tool. Cent.
January.....	2.10	2.10	6.50
February.....	2.10	2.10	6.50
March.....	2.10	2.10	6.50
April.....	2.10	2.10	6.50
May.....	2.10	2.00	6.50
June.....	2.10	1.95	6.50
July.....	2.05	1.95	6.50
August.....	2.05	1.95	6.50
September.....	2.00	1.95	6.50
October.....	1.95	1.95	6.50
November.....	1.95	1.95	6.50
December.....	1.95	1.95	6.50
Average for year.....	2.05	2.00	6.50
Average for 1892.....	2.09	2.11	6.35
Average for 1891.....	2.40	2.32	6.70
Average for 1890.....	2.75	2.70	6.25
Average for 1889.....	2.41	2.50	7.75

Steel Rails.

In the past the steel rail trade has been the mainstay of Chicago's iron interests. Its rail mills are among the largest and best equipped in the country, and are situated at the greatest railroad center in the world. The mileage of the roads radiating from Chicago is so vast that rail business of large proportions would seem to be assured from year to year. But in 1893 only enough orders could be secured to keep one mill in operation for about seven months. The Union mill, one of the best in the world, was completely idle during the year, not having rolled a rail since October, 1892. And yet 1893 opened with comparatively fair prospects. The tonnage entered from established roads was about the same as for previous years, and new enterprises and extensions of old roads were contemplated which promised considerable more business. But as railroad traffic fell off and financial stringency set in, railroad managers grew economical and new enterprises were dropped. Orders entered were cut down, some were canceled, and in other cases the manufacturers refused to roll the rails ordered until satisfactory assurances could be given that payment would be made on delivery. The Colorado Fuel & Iron Company also entered the field under new and more vigorous management

and secured considerable tonnage which would otherwise have been placed in Chicago. Prices were, nevertheless, steadily maintained in consequence of the agreement of the manufacturers regulating the output of the several mills until November, when a reduction was made of \$5 per ton. The year closed with a fair tonnage entered for 1894, both by the Chicago and Colorado mills. The following table shows the course of prices during the year on round lots:

January.....	\$30.00	July.....	\$30.00
February.....	30.00	August.....	30.00
March.....	30.00	September.....	30.00
April.....	30.00	October.....	30.00
May.....	30.00	November.....	28.00
June.....	30.00	December.....	25.00

The average for the year was about \$29.50, against \$31.17 in 1892, \$31 in 1891, \$34.50 in 1890 and \$31.37½ in 1889.

Old Material.

Prices of all kinds of old iron and steel declined sharply in 1893. The accumulation of stock in dealers' yards had been so great in 1892 that the increased local consumption in 1893 was not sufficient to materially reduce it, especially as a new supply continuously pressed for disposal and the mills of Ohio and Western Pennsylvania drew more lightly than usual on Chicago scrap. Early in the year the classification of old material was changed by the railroads making an advance in freight rates, which handicapped the Chicago dealers. The increased consumption of steel billets by the bar mills also exerted a depressing influence on the scrap trade. Toward the close of the year the supply of wrought scrap fell off considerably, as prices were so low that country collectors became discouraged and almost ceased to make shipments to city dealers. Under ordinary circumstances this would have caused a good advance, but the competition of steel continued to be felt and values showed only a slight stiffening. Cast scrap fared better than wrought. It sold at its lowest price in the summer months when the foundries were almost universally shut down, but in the autumn months the demand improved with the resumption of operations, and values reacted to some extent. There was almost no demand for old car wheels from consumers. At the beginning of the year they were quoted at \$14.75 to \$15, gross ton, but in the autumn they sold down to \$10 and in some instances to \$9.50, speculative purchasers being found wherever sellers were willing to take \$11 or under. Mixed steel scrap sold at \$10.50, gross ton, at the beginning of the year, but fell to \$7 at the close. Old steel rails declined from \$12.50 to \$15 in January, to \$7.25 to \$10 in December, according to length of pieces, long lengths commanding the higher rate. The following table shows monthly average prices of some of the leading classes of old material at Chicago, old rails being quoted per gross ton and the others per net ton:

Months.	Old iron rails. Cents.	No. 1 forge scrap. Cents.	No. 1 mill scrap. Cents.	Cast scrap. Cents.
January.....	\$18.50	\$15.50	\$10.75	\$11.5
February.....	18.50	15.50	10.75	11.25
March.....	18.25	15.00	10.75	11.25
April.....	17.75	15.00	10.50	11.25
May.....	17.50	14.00	10.00	11.00
June.....	17.00	12.50	9.00	10.25
July.....	16.00	12.00	9.00	10.00
August.....	15.00	11.00	8.50	9.00
September.....	14.50	10.50	8.00	8.00
October.....	14.50	10.25	8.00	8.50
November.....	14.50	10.25	8.00	9.50
December.....	14.00	10.50	8.00	9.50
Av'ge for year.....	16.25	12.75	9.25	10.00
Av'ge for 1892.....	19.10	15.75	11.17	11.68
Av'ge for 1891.....	22.75	18.35	13.75	12.25
Av'ge for 1890.....	25.00	19.75	15.62	13.37½
Av'ge for 1889.....	22.37½	19.42	14.56	12.00

Thus closes the record of the worst year known in the Chicago iron trade. May the review of the next year prove a more pleasant task !

Progress in Naval Work Abroad.

W. H. Jaques, ordnance engineer of the Bethlehem Iron Company, South Bethlehem, summarizes his observations during a recent trip in England and France as follows :

While all the great naval powers are steadily increasing the strength and number of their vessels of various types, the agitation in Great Britain, given more prominence by France's recent enthusiastic reception of Russia's fleet, is the absorbing theme of naval construction. The desire for the further development of the British Navy is so general among all classes of British subjects that the omission of a budget for this purpose would surely cause the fall of any party that did not urge it.

I have seen no dispatches for more than a week, heavy westerly gales and seas having extended the Umbria's passage to more than eight days, but I have no doubt Mr. Gladstone's Government has already made the statement called for by Lord George Hamilton's resolution of the 12th ult.: "That, in the opinion of the House, it is necessary for the maintenance of the security of the country and the continued protection of British interests and commerce that considerable addition should at once be made to the navy; this House therefore calls upon her Majesty's Government to make, before the Christmas recess, a statement of their intentions in order that immediate action may be taken thereon."

Lord Hamilton's article in the December number of the *National Review*, "Is Our Sea Power to be Maintained?" is but one of the many powerful arguments for the increase of the British Navy, and the array of eminent men gathered together in the city of London on December 12, to consider the state of the naval defenses, bears testimony to the earnestness of the general appeal. Owing to indisposition, the Lord Mayor was unable to preside, but the chair was filled by Sir Albert Rollit, M. P., Chairman of the London Chamber of Commerce, and the following resolutions were unanimously carried:

"That this meeting views with deep concern and anxiety the state of our navy and urgently presses upon the Government the necessity of taking immediate steps to provide such additional means of defense as shall afford that security which our empire and our commerce demand.

"That this meeting is further convinced that in any financial scheme necessary in the public interests the Government may be assured of the hearty support of the commercial community."

Lord Hamilton's arguments appeal strongly to the British nation, who fully appreciate that "the nation or combination of nations that has most large ships will have command of the seas," and his estimate of the ability of Dr. White, the director of naval construction, is universally indorsed. While in England I had the honor of being the guest of Dr. White and Dr. Elgar, both so eminent and well known by their accomplishments in naval architecture. With such leaders Great Britain can safely predict supremacy in naval and merchant construction for many years to come. In battle ships Great Britain has gone to individual tonnage of 14,-

900, while France and Russia have not exceeded 12,500.

In estimating the naval strength of France Lord Hamilton overlooks two elements that have important bearing—one, the slowness in completing her ships; the other, that her energy and finances will be principally devoted to preparing her army to meet that of Germany. If France cannot make adequate appropriations for both her army and her navy she will let her navy wait, lest in the case of the defeat of her army the damage done by her navy shall increase her war indemnities.

By cultivating intimate and effervescent relations with France, Great Britain will have a greater reserve for the protection of her Indian acquisitions. In any case, however, her territory is so extensive that the most liberal budgets can scarce meet her naval needs. In connection with these budgets the requirement that all unexpended money at the end of the year shall be returned to the treasury must seriously impede completion. These amounts should be available until expended for the purpose voted.

In the British estimates of the naval strength of the powers, Italy, Spain and Austria appear to be left out of the problem. Whether this is due to their depleted treasuries does not appear. But Russia's power is always recognized, no matter how much money she borrows, while the financial strength of the French peasantry will long remain a bulwark no matter how volatile the Government or how few France's military leaders.

Of that class of craft known as torpedo destroyers, England will have a formidable fleet, as 36 of the "Havoc" class have either been built or ordered. At a mean draft of 6 feet, these vessels displace about 210 tons. They are 180 feet long, with a breadth of beam of 18 feet 6 inches. They cost about \$185,000. At Mr. Yarrow's request I took a spin down the Thames the other day in the "Havoc," which he has recently completed. Five years ago I made a trip down the same river in one of his first class torpedo boats that easily logged 23 knots. This year I had the pleasure (although there was not much comfort about it) of feeling the "Havoc" make a short spurt at 27 knots. In appearance she is similar to but larger than the first class torpedo boats, is fitted with triple expansion engines capable of developing 3600 horse power, twin screws, locomotive boilers, forced draft, carries 60 tons of coal in her bunkers. Her armament of one 12-pounder, three 6 pounders, and three 18-inch torpedoes is too heavy, but I have since been informed that though so heavily armed she will probably never carry all of these at the same time.

Placing the supply of naval ordnance in the hands of the British Admiralty has greatly improved their naval armaments; but in all navies a mistake is made in not replacing obsolete with modern ordnance of higher ballistics, even in those ships which are considered obsolete themselves. If they are useful enough to be retained in service, they would be more efficient if they had modern batteries. While the general tendency is not to exceed 67-ton guns of 13-inch caliber, case hardened armor will require large calibers and greater energies. This has led to a revival, particularly in England and Russia, of wire wrapped ordnance, and in the former country alone large numbers of this type of calibers, varying from 6 to 12 inches, are being manufactured. While

the guest of Dr. Anderson, Director General of Ordnance Factories, he spoke to me with great satisfaction of the results that have been obtained and the progress made in this direction. I was glad to learn from Mr. Longridge that the British Government had at last recognized his work by giving him a pension. He was naturally gratified that guns of a type so long cherished by him should now be manufactured as service guns.

All the makers of rapid fire guns and ammunition have been increasing the size and power of their products and giving special attention to mounts and ammunition. The tests at Sandy Hook, for which so much preparation has been made, should prove of great value, as a large number of 4.7-inch quick firing guns of different makers will be put through their paces to determine which one possesses the most value under as nearly as possible service conditions. In the general supply of this kind of material the Hotchkiss Company keep their well earned reputation, and the very recent marked success of the Howell torpedo, manufactured by this company in the United States, will no doubt soon be followed by their general acceptance abroad, for although the speed of the Whitehead has been increased to 30 knots and its size to 18 inches its trajectory still continues uncertain and its mechanism very delicate. In breech mechanisms Canet may perhaps still be given the lead, although Whitworth cannot by any means be relegated to second place. Whitworth, Schneider and Canet all have large orders for gun carriages, the best general types of which are the Canet-Whitworth.

In projectiles the Holtzers still stand in the front rank, particularly those of the heavier calibers.

The powder question is still a trying one. With the cordite class better ballistics are obtained, and much faith is now placed in its stability, but the destruction it causes to the chamber and commencement of the rifling almost suggests a return to smooth bores. Unless its temperature can be reduced it may have to be replaced by some other explosive. In our Leonard powder this factor is said to obtain, but it is a comparative youth in powders, and must yet be subjected to much practical questioning. The early results obtained with it are surely most favorable.

In armor Schneider & Co. of Le Creusot, France, still lead in Europe, the carbonized armor for the Russian battleship "Three Saints" having shown remarkable resistance. Plates for France, Russia, Japan and other countries keep this fine plant occupied, and although three other large companies in France receive orders from the French Government, Schneider & Co. still retain a proportion more than that of the others combined, and fully 60 per cent. of the armor supplied to countries having no plants comes from this splendid establishment.

Although the three French companies just referred to, who manufactured compound armor under the Cammell patents, I am informed, have been induced to take an interest in, or pay a royalty to, the Harvey Steel Company, Limited, the Schneider Company depends upon a method of its own, finding nothing in the Harvey patents of sufficient value or novelty to interest them.

According to a custom that has prevailed for a long time in Great Britain, dividing the armor among domestic

firms that have plants, the latest order for heavy plates has been divided between Vickers, Brown and Cammell. It is to be of carbonized steel. These three firms and the Beardmore Company are reported to have an interest in the Harvey Steel Company, Limited, which was floated in England to operate the Harvey patents. As is well known this process was patented by John D. Ellis, general manager of the works of John Brown & Co. of Sheffield, and applied by him many years ago, and is the one in which Commodore Folger was so greatly interested while he was Chief of the Bureau of Ordnance, and to take a commercial interest in which he was reported to have resigned that position.

Since the absorption of the Grunsonwerk by Krupp that gentleman controls more firmly than ever the supply of war material to Germany. In heavy ordnance he has not yet gone beyond ordinary service ballistics. His wonderful exposition at Chicago is of course fresh in the minds of all Americans who visited or read of the World's Columbian Exposition of 1893. He supplies carbonized armor, both in plain and nickel steel, but does not make public his methods. It has also been reported that he has made a large number of wire wrapped field guns, but I have not been able to have this report confirmed.

THE WEEK.

Gen. Sir Archibald Alison, one of the most experienced and sagacious military chiefs of Great Britain, is placed on record as expressing a conviction that a great European Continental war cannot be long delayed. England, he thinks, would be neutral.

Shipping men are greatly interested in a long ocean race which began on December 27 between two big iron sailing vessels. The boats left New York bound for Shanghai, and are owned by rival firms, chartered by rival shippers and consigned to rival agents.

Tidings from the Canadian Northwest speak of acute distress among the farmers in that region, where the crops were a partial failure.

Philadelphia, by an ordinance of the City Council, is to have dollar gas.

The *Bankers' Magazine*, of London, comparing the values of stocks in 1893 with those of 1892, exhibits a shrinkage of over \$300,000,000 in 334 leading securities.

Chicago has a deficit of nearly \$3,000,000 in the municipal treasury staring it in the face.

Many complaints having been made by the employees of the State, War and Navy Departments of the inadequate ventilation and insufficient space for the clerks in the building allotted to those bureaus, a board of officers has been detailed by Secretary Herbert to examine into its sanitary condition. The State, War and Navy Building is the latest of the Government edifices in Washington.

There were 4132 fires in the city of New York last year, the estimated loss from which was more than \$5,600,000 over and above that covered by insurance.

One proof of the falling off in foreign trade last year is shown in the fact that only 5024 vessels arrived at New York

from foreign ports as against 5383 in 1892. Of the number arriving in 1893 1114 were American vessels, 304 of which were steamers. In 1892 1219 American craft were among the arrivals.

Mexico is about to undertake an important irrigating enterprise, which will, when completed, afford water for some 500,000 acres of good cotton land. Works are to be commenced, consisting of a dam 6 miles about the junction of the San Juan and Rio Grande rivers and some 100 miles of canal and laterals.

The fishing industry appears to have been happily exempt from the general depression of last year. The annual report from Gloucester, Mass., speaks of a prosperous fishing season in 1893, with the catch of that section estimated in value at \$9,000,000, and receipts approaching those of 1892, which was an exceptionally good year. Fortunately financial stringency does not repel from our coasts the finny denizens of the deep.

Canada is able to show a foreign trade for 1893 which is the largest in the history of the Dominion—namely, \$247,694,000, as compared with \$241,369,000 in 1892—the next largest on record.

An explosion of natural gas created a tremendous wreck in the town of East Chicago, Ind., on December 30. The explosion was caused by the upsetting of a lantern while workmen were repairing a leak in the pipes of the natural gas pumping station. A number of laborers and others were fatally injured.

One of the most powerful electric searchlights yet constructed is to be mounted at Sanky Hook for coast defense purposes.

The 25 years' charter of the Louisiana State Lottery Company having expired on December 31, the enterprise has finally taken its departure from United States soil. Honduras is to be the headquarters of the industry in future.

Building operations in the Eastern States are almost at a standstill. Much work in this line is, however, in sight, provided confidence shall be presently restored.

The investigations of the United States Geological Survey in the South reveal the fact that large tracts of abandoned land in Mississippi, Kentucky and Tennessee, which were formerly under a high state of cultivation, are being rapidly converted into deserts approximating to the "bad lands" of Montana and Dakota. Some of these regions aggregate from 4000 to 10,000 square miles in area, and are so far destroyed that it will take many years to restore them to fertility. Professor Shaler of the Survey urges the immediate planting of willows or other quick growing trees as the only check against further deterioration by preventing the washing away of the soil.

Chairman Wilson of the Ways and Means Committee of the House has had prepared a statement of the quantities and values of imported merchandise for 1892 and 1893, also the rates of duty paid for these years, together with the rates proposed by his tariff bill, and the estimated revenue under his bill, based upon similar importations. The duty received under the McKinley bill for the year 1892 was \$173,098,471. The duty estimated under the Wilson bill for a like period would have been \$107,690,170, making

an estimated decrease of \$65,407,900. The total duty received for 1893 was \$198,473,452. Under the Wilson bill it would have been \$122,665,668, or an estimated decrease of \$75,707,784.

Railroad interests seem to have been peculiarly hard hit by last year's financial disorders. The tale of railroad troubles for 1893 shows more receiverships than during the previous ten years, while their individual importance was even more remarkable.

Manchester became an open seaport on January 1, when the ship canal was formally opened for traffic.

Too many are calculating their balance of loss just now instead of profit.

PERSONAL.

James H. Lindsay of the firm of Lindsay & McCutcheon, proprietors of the Star Iron Works, Allegheny, Pa., and president of the Select Council of that city, is now lying seriously ill at Atlantic City, N. J., with congestion of the lungs.

Wm. Metcalf of the Crescent Steel Company, Pittsburgh, Pa., accompanied by his family, left for Florida last week to spend the winter.

W. H. Jaques, ordnance engineer of the Bethlehem Iron Company, has returned from a brief trip to England and France.

At Pittsburgh H. O. Hukill has been appointed purchasing agent of the Pennsylvania lines west of Pittsburgh, to succeed William Mullins, deceased. The appointment went into effect on January 1.

Charles McCrery, who has for several years been superintendent of the blast furnaces of the Troy Steel and Iron Company, Troy, N. Y., has resigned, and accepted, on January 1, the management of the Dunbar furnaces at Dunbar, Pa.

The will of the late George H. Babcock, head of the firm of Babcock & Wilcox, the well known boiler makers, was probated last week, the real and personal estate being valued at about \$2,000,000. Among other beneficent legacies Mr. Babcock bequeaths \$10,000 and three valuable houses to the Public Library of Plainfield, N. J., to establish a fund for the purchase of industrial, scientific and mechanical books for the Babcock Scientific Library, subject to the rules of the Library Association. The will directs the completion of the handsome office and stone building, one of the finest in the State of New Jersey, which has been in process of erection for some time.

J. K. Bole has resigned the position of general manager of the Otis Steel Company, Limited, Cleveland, Ohio, in order that he may devote his entire time to other interests.

Striking steel workers at Pont-y-Mister, Wales, created a disturbance on Christmas Day by attempting to eject some Scotchmen who had been engaged in their stead. On the arrival of the police the fight became a serious riot in which many on both sides were badly injured, the strikers being eventually dispersed. By last accounts the strikers were threatening further violence, and the aid of a military force had been called in.

The Iron Age

New York Thursday, January 4, 1894.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - HARDWARE EDITOR.
JOHN S. KING, - - BUSINESS MANAGER.

Low Prices and the Ore Situation.

No group of business men is peering more anxiously into the future than the iron and steel manufacturers in this country. The terrific strain under which they have been cannot be endured very long even by the best equipped plants, while ruin is staring a good many concerns in the face. The conviction that the tide must turn is general, but we believe that the great majority of both sellers and buyers agree that the time for that turn has not yet come. No one is yet inclined to jump into the market and receive raw material for a long time ahead or to hold back with sales of finished product. Of course, the magnitude of the consumption must above all determine the course of prices, since there is no doubt whatever as to the ability of the producers to supply whatever quantities may be required. The active, partly employed capacity is so great that an enormous demand is needed to bring out a part of the reserve capacity.

While in times like these the cost of production seems to have very little influence in checking the spread of low prices, such an abnormal state of affairs cannot long continue. The question whether during the current year costs can be kept down quite so low as they are now is, therefore, one which manufacturers and consumers will study with deep interest. At the bottom of it all lies the price of iron ore for the coming season. There is a good deal of wild talk concerning the influence which the Mesaba range will exert this year. We hear it claimed that 4,000,000 tons of ore from that section are to be thrown on the market, and that, therefore, 4 cents a unit is to be the price for Bessemer ore at the lower lake ports. Although it is true that low offers for the coming season have been made by some of the mining interests, it would be altogether erroneous to assume that the steel manufacturers will be able to contract for their supply of ore on the basis of such figures.

First of all the exuberant miners on the Mesaba range overestimate its possibilities for the coming season. Estimates made by very good, conservative authorities place the maximum which can be mined and shipped with the facilities at hand and those likely to be provided at 2,500,000 tons. No one doubts that the range can and will produce more than that in later years. But the trade is dealing with the near future, and not with the possibilities of 1895 or 1896.

Then it should be understood that in spite of assertions to the contrary careful furnacemen will not use more than a certain proportion of the Mesaba ore on account of its physical condition. Local circumstances naturally control this percentage. There are those who stop at 20 or 25 per cent. Others are willing and able to double or even treble that figure.

In other words, the Mesaba range cannot, at the very best, do more than supply one-third of the total consumption of Lake ore, although, of course, it will have a relatively greater influence on the market of Bessemer ore. Nor can the manufacturers of pig iron get along without a certain percentage of other ores, however tempting may be the prices at which they buy the material from the mines of the new range.

The Mesaba range may set the pace, but it does not follow that the others will rush after it. On the contrary, the Cleveland interests which predominate in the ranges outside of the Mesaba and the Vermilion are known to hold altogether different views. They are strong enough to adhere to their determination not to throw away their property because others can sell cheaper. The weak-kneed have been pretty well eliminated.

It is probable, therefore, that in spite of the low prices at which Mesaba ore may be sold the furnaces and steel works will not be able to produce at the cost indicated by the figures referred to. We do not expect that producers will be able to duplicate in 1894 the cost sheets of the last months of 1893. Consumers of material, from the pig to the higher grades of rolling mill products, will do well to dismiss from their minds the idea largely entertained that 1894 is to bring even lower costs and therefore cheaper prices. While it looks as though there may be some more record breaking in that respect during the dull months before spring, this condition of affairs will be only temporary.

The remark credited to Mr. Carnegie in a published interview that his company had pursued the policy of taking every order to be had North, South, East and West, regardless of prices, simply confirms officially what the trade has long since understood. To buyers this notice that they may make their own terms will be a welcome aid in their negotiations. We believe that it is in that respect the most astonishing announcement on the part of a seller ever made in the history of the American iron trade. Since a large number of mills East and West which are direct competitors of the company are running and have orders on their books, it is clear that the sales agents have not been sufficiently regardless of prices on some points of the compass to live up to the instructions of their chief. The fact is, however, that more than one Pittsburgh concern and a number outside of that district have at times been leaders in the

decline, and that at least a few of them are quite able and willing to take care of themselves.

Freight Charges and Repairs.

In handling goods in a country as large as the United States the question of cost of transportation is one of the most important to be considered by the manufacturer who expects to sell his product in every State. The distances are so great, as compared with those of most foreign countries, as to materially increase the cost of selling the article. It is the influence of freight charges on the design of an article to which we desire to call attention.

We have in mind a large establishment in an Eastern State who were compelled, solely by reason of the cost of transportation, to essentially modify their designs. The same device had been introduced in England, where no difficulty had been experienced in handling it. The managers of the English house could not understand the necessity for the changes, as they failed to appreciate the part played by transportation charges alone, since in their own case this factor was of minor importance. In the article referred to the alterations were in the direction of facilitating repairs. It was found that from some distant parts of the country it costs more to send the article to the factory for repairs, and pay freight both ways, than a new one was worth. Therefore the business was injured. The article consists of a body containing the parts, only two of which are subject to wear. Extended experiments were made to make these parts independent of the body and to redesign the whole so that needed parts could be supplied and be inserted by the user without trouble. These efforts were successful and it is now only necessary to send to the works for the required part, which is light and small, and on which the freight is insignificant and only in one direction.

This procedure revolutionized the entire methods of that works. Interchangeability of parts became a first requisite; better machinery specially adapted was obtained, the result being that a better article is made than formerly, the cost of production is reduced, and above all the distant market is improved because repairs can be easily and cheaply made.

If we possessed in the American copper trade statistics indicating even approximately the condition of stocks from month to month, then some highly interesting figures could be presented in a most convincing manner. As it is we must not neglect any fluctuations in stocks in a computation which shows results unparalleled in the American metal trades. The returns which Mr. Stanton makes monthly show that during the last five months our production

plus the imports amounted to 61,962 gross tons. In the same time the exports footed up to 51,708 tons, leaving apparently for home consumption for four months only 10,229 tons. The average monthly consumption last year was 10,000 tons, or five times that of the panic period of 1893. We have no doubt but what these somewhat extreme figures would be modified were a comparison of visible stocks possible. Still, the decline in consumption has undoubtedly been even greater in copper than in iron. It is appalling to contemplate what straits the copper producers of the United States might have been forced into had they not had an outlet for such tremendous quantities of metal in the European markets.

Business Mortality in 1893.

Were it not that some important points can be gathered from the study of the statistics of business mortality in 1893 the subject would be promptly dismissed by those engaged in commerce, industry and finance. Post mortem examination is not pleasant, but may be instructive.

The two commercial agencies, *Bradstreet's* and *Dun's*, have made departures in their former methods in order to permit of the study in greater detail of the commercial failures which have taken place.

Dun's Review gives a classification showing separately the number, assets and liabilities in each State and section of manufacturing failures, trading failures, and "other" failures, including brokers and speculators. Besides they tabulate banks and financial failures, which are also classified. The aggregate results by sections are as follows, all former slave holding States being reckoned as the South, the three west of the Mississippi being called the Southwest and the States between Pennsylvania and the Mississippi being classed as Central:

	Manufacturing.		Trading.		Other.	
	No.	Liabilities.	No.	Liabilities.	No.	Liabilities.
	Thousands	of dollars.	Thousands	of dollars.	Thousands	of dollars.
New England.....	482	\$12,065	1,290	\$14,820	24	\$2,768
Middle.....	1,149	100,700	2,035	25,758	80	13,186
Southeastern.....	358	10,107	2,096	20,668	89	4,935
Southwestern.....	90	1,713	1,047	10,878	12	2,518
Central.....	664	28,139	1,387	19,682	55	6,452
Western.....	219	7,075	1,656	19,480	51	15,429
Pacific.....	264	4,908	1,172	9,269	41	1,428
Totals.....	3,226	\$164,708	10,683	\$120,054	302	\$36,663

The following table shows by sections the total of banking and commercial failures together:

	Commercial.		Banking.	
	No.	Liabilities.	No.	Liabilities.
New England.....	1,798	\$29,651,770	16	\$12,546,000
Middle.....	3,263	139,594,553	35	43,478,618
Southeastern.....	2,498	35,709,419	82	22,119,514
Southwestern.....	1,149	14,606,509	61	29,703,776
Central.....	2,106	54,272,372	149	37,457,963
Western.....	1,926	41,982,422	218	39,554,298
Pacific.....	1,477	15,605,894	81	26,138,639
Totals.....	14,212	\$331,422,939	642	\$210,998,808

The banking and commercial failures together involved concerns whose aggregate assets were \$497,443,700,

while the liabilities amounted to \$542,421,747. In addition thereto there went into the hands of receivers railroads whose total mileage was 25,375, representing a nominal stock interest of \$674,412,487. It is estimated that their total indebtedness is \$1,212,217,033, which amount exceeds by over \$200,000,000 the aggregate bonded debt of the railroads failing.

Bradstreet's has somewhat different figures relating to business failures, since its totals include commercial, industrial and financial business failures, in which estimated actual assets are smaller than reported liabilities. Thus they do not include 240 banks, whose aggregate liabilities amounted to about \$80,000,000, as contrasted with assets of \$100,000,000. In this way the business failures figure up to \$402,427,818 for the liabilities, against \$262,417,532 assets. The proportion of the latter is greater than ever before, being 65 per cent.

When it is considered how enormous is the shrinkage in values of stock and assets of those concerns which have weathered the storm some faint conception of its destructive effects may be obtained. There were 1,050,000 firms, corporations and individuals in business in 1893, of whom 15,560, or 1.50 per cent., failed. The records of losses cover only that small percentage. How infinitely greater must be the losses of the survivors!

It is asserted by patent solicitors of experience (and it is thought the patent records will justify the assertion) that soon after a recovery from business depression begins to be felt, there is, as a rule, a notable increase in the number of applications for patents. Part of this increase may be attributed to delays caused by financial embarrassments; but the total increase seems greater than can be so accounted for. It appears probable that the additional time afforded for study and invention

than when shops are crowded with orders and the energies of all are taxed to meet pressing demands. The workers in the field of invention are mostly in the ranks of the employed. The heavy load of financial management is not borne by them, but by those who pay their salaries, and any reduction of their ordinary duties more or less sets free their active minds to originate something new or to perfect what has perhaps long awaited completion.

OBITUARY.

JOSEPH WAINWRIGHT.

Joseph Wainwright, who died in Medford, the 13th ult., was born in England but came with his parents to the United States when but a child. His parents made Exeter, N. H., their home. After leaving school he came to Boston and entered the employ of John Shepard, dry goods dealer on Hanover street. Later he decided to learn the machinists' trade, going to Manchester for that purpose. Subsequently he returned to Boston and was engaged by Hill, Clarke & Co., machinery dealers, 156 Oliver street, Boston, as salesman. He was held in such high estimation by the firm that he was intrusted with important commissions, many of which extended far West and South and some necessitating his visiting Europe. For the last eight years Mr. Wainwright has been a member of the firm. Mr. Wainwright had only attained to middle life, being but 45 years of age, and his future prospects seemed exceedingly flattering, when he was attacked in the early summer months by Bright's disease.

HENRY L. PIERSON.

Henry L. Pierson, the head of the house of Pierson & Co., one of the oldest firms in the iron trade in this country, died on Thursday at the New Amsterdam Hotel. He was born at Ramapo, Rockland County, August 15, 1807. The firm with which his long business life was identified was founded by his father, Jeremiah H. Pierson, and two uncles, Josiah G. and Isaac Pierson, who came from Berkshire County, Mass., and began business at 9 Whitehall street soon after the close of the Revolutionary War. After many years the business was removed to 24 West street, and more recently their office has been in the Columbia Building, 29 Broadway. This firm were the first to introduce cut nails made by machinery. Many years ago he was the second vice-president and afterward the treasurer of the Erie Railway. Mr. Pierson leaves two sons, Henry L. Pierson and J. F. Pierson, who now constitute the firm of Pierson & Co.

COL. L. C. BOONE.

Col. L. C. Boone, for some years secretary and treasurer of the Buckeye Engine Company, at Salem, Ohio, and one of the founders of that concern, died at his residence in that city on the 20th ult. Colonel Boone was also connected with a number of other industries at Salem.

In his annual message Governor Flower of New York makes the interesting and satisfactory announcement that for the first time in 75 years the State is out of debt.

Washington News.

(From our Special Correspondent.)

WASHINGTON, D. C., January 1, 1894.

The tariff revision situation in Congress is rapidly sifting itself out so that a practically definite estimate can be made of the result. The returning members of the majority are, as a rule, more dissatisfied than ever with the provisions of the bill, as they affected industries in general and their own constituents in particular, but none of them are willing to break away from party discipline and take the bull by the horns.

The Speaker and the Committee on Rules, working in harmony with the majority of the Ways and Means, have decided to reduce the debate in the House down to a minimum four days for general discussion and ten under the five minute rule for amendments. This may be extended, but not materially, from present indications. The set speeches will be almost entirely confined to the majority and minority members of the Committee on Ways and Means.

The majority opponents of certain items in the bill will make their opposition demonstrations in Committee of the Whole, where they are not on record as to votes by name. If they succeed in striking out or modifying the objectionable rates they will be in shape to vote for the bill in the House. They admit, however, that they will vote for the bill on its final passage, no matter what shape it is in.

As far as present indications go it is not probable that there will be 15 majority votes against the measure in its entirety. This number may be greater or variable on certain articles like coal, iron ore, wool, lumber, salt and other articles on the free list and upon which separate votes will be asked by the minority in the House for purposes of record.

It is conceded by the minority that it would be useless to prolong the struggle in the House under the parliamentary methods dominant there. They will simply carry their efforts in that direction far enough to force the majority to develop their tactics and then leave it for the people to decide whether their great interests were given proper consideration.

The caucus question is again being agitated and will doubtless be carried out. A large number of the majority, however, are somewhat reluctant about going into a gathering of that sort, as they are not anxious to be bound by its mandate. The purpose, however, of the caucus is represented to be an agreement upon a line of policy to be pursued in reference to debate.

If an attempt should be made to take up the bill and force an iron clad compact among the parties present in the caucus, there would be considerable of a commotion or a bolt.

The handful of the minority wing of the majority who are opposed to the bill are fighting shy of such an issue. The majority also as a whole are not anxious to invite such a crisis, as the impression is that an outbreak might force a number who are now in line simply as a matter of fealty to take sides where their local interests would place them. It is anticipated that the tariff issue will be fought to a parliamentary finish without any obstructive processes in the Senate. The majority Senators have been quietly conferring

as to the House bill. Those who are opposed to certain portions of the bill are Senators Hill, Murphy, McPherson, Gorman, Gibson, Faulkner, Brice, Pugh and Morgan. This makes nine of the majority sufficient to close the measure out by any parliamentary process upon a direct vote, and yet the inference from the talk of these gentlemen is that every one of them will vote for the bill in whatever shape it comes before the Senate on its final passage.

One of these gentlemen speaking on the subject incidentally and apparently unintentionally indicated the programme which had been decided upon among themselves. When the bill is taken up for debate and amendment in the Senate a combination of the interests represented by those Senators will vote to restore certain articles like coal and iron ore to the dutiable list, and may make an effort to secure an increase in certain rates.

It is possible that in some cases they will succeed, but even should they not secure some compromise rate, when the bill as a whole is before them they will vote for it. This, they say, is the determination to which they have come. Therefore it is safe to say that the Wilson bill, including free raw materials and rates under the metal schedule as they now exist in the bill, or as they may be modified, will pass the Senate when the vote is taken.

Senator Faulkner, who represents West Virginia in the Senate, in conversation with the correspondent of *The Iron Age*, said: "In West Virginia we do not like free coal. That item in the bill will be antagonized and, possibly, we will be able to put it on the dutiable list with a 35 or 40 cent a ton duty. That would be about one-half the present rate. Our people say that they can get along on that. Ex-Senator Davis, who is a large owner and operator of coal lands, also says so, and, I believe, has had some conversations with his senatorial friends. We know very well that the Nova Scotia coal is of an inferior grade and might not be a serious competitor in our market; but the inferior coal, we must admit, would regulate the price and consequently affect wages. This might not be serious at some points. It is fair that a better quality of coal should command a better price, and ordinarily in our own markets it would do so; but it does not seem just to our own working people that an inferior foreign article should come into our markets free as a competitor at a lower cost for production. The question of freight would enter into the problem and make a slight difference, perhaps, in our favor at certain points, but aggregately our home coal trade would be very greatly disturbed." The Senator expressed himself confident that a compromise rate could be secured provided the minority Senators would support such a proposition, about which there is some doubt. The minority of the Senate, led by Sherman, Allison and Aldrich, who were prominent in the revision and passage of the House bill of 1890, say that they will insist upon the full rates of that bill, claiming that its wisdom was fully sustained in the test which it has had during the time which it has been in operation.

If the minority Senators insist upon the existing rates and the majority divide on free coal and a compromise rate the present rate might be restored. This would force the anti-free coal Senators to vote against 75 cents a ton if the issue were between that figure and free coal, if they proposed to keep

in line with their political friends. They will occupy a perplexing position, and it remains to be seen how they will shape their course in such a dilemma. In reference to the 22½ per cent. ad valorem duty on pig iron, there appears to be no serious movement among the majority Representatives or talk in that direction among majority Senators. The Alabama interests are making very serious opposition to free ore as well as coal, but are not so much concerned about iron. In the case of free ore they see in that an interference with the market which they have been having for their iron, in the Middle States particularly. The interests of the latter section in the House are disposed to accept free ore as a protection to their iron industry, which they say is now very seriously depressed, largely for the reasons stated.

The complications which will be encountered in the Senate when the bill reaches there can be seen from these items.

The conflict of interest in the majority is almost entirely confined to coal and iron ore, as the States controlled by the majority are the ones most affected, including West Virginia, Tennessee, Alabama and Georgia on coal, and New York, New Jersey and Alabama particularly on iron ore. The other States are controlled by the minority and therefore their action would not change the result.

There is another consideration which promises fair treatment, and that is the cordial feeling which exists between the majority and the minority members of the Finance Committee. In the Ways and Means Committee the minority seemed to not be regarded as entitled to any more than a perfunctory right to listen to the bill read in full committee after the measure was completed, and it was only after a parliamentary skirmish that they were permitted to get in their minority report with that of the majority.

In the Senate committee the majority will take up the House bill, hear what parties interested have to say, and when they have completed their schedules both sides will go over the schedules carefully and put them into shape on the line of revenue instead of deficiency.

It will be then that the minority will determine their line of policy on the measure in the Senate, as to whether simply to make a full record of opposition and then allow it to go through or make a protracted opposition with a view to prevent final action. This will depend upon the state of public sentiment at the time.

The bill will, of course, receive its final touches in conference committee on the disagreeing votes. The real bill will then be made, as far as the main controverted features are concerned, as the Senate committee and the Senate are not likely, under any circumstances, to adopt the bill as it comes from the House.

In the meantime the best policy for all the industries would be to go ahead, if trade conditions warrant, with a certainty that the provisions of the Wilson bill strike the bed rock of revision, and whatever change shall be made in any of the schedules will be more favorable in the direction of existing figures than in the other direction.

Some highly successful experiments were carried out a few days ago, at the Sandy Hook Proving Ground, with the Wheeler Sterling deck piercing projectiles. Tests were made with four of

these shells, fired from a 12-inch mortar with a 45-pound charge of powder. The target was a 4½ inch plate, 16 x 5 feet. Every shell pierced the plate and the strong backing that held it, and was afterward recovered in perfect condition, barely showing a scratch.

Duluth News.

The recent sale for a large sum to the Chicago & Minnesota Ore Company of the Wyoming Iron Company's leases on the Mesaba Range calls attention to the Iron King Mine, on these leases, and also to the extent of the present holdings of the purchasing company representing the Minnesota Iron Company on the new range. The Iron King lies in sections 17, 19 and 20, town 58-17, the phenomenal iron township of the Mesaba. It was opened by N. D. Moore, well known through Wisconsin from his meteoric connection with the Gogebic Range ten years ago. He opened the Iron King under a 20-cent sub-lease from the Wyoming, which itself paid 30 cents a ton royalty to one of the big lumber companies of the State. Some 38 pits were sunk in ore during the past autumn, marking out an area of deposit some 3200 feet in length north-east and southwest by 600 feet wide on the average. One pit was sunk 238 feet, through to the bottom of the ore body, 220 feet being in ore. The rest were put down from 10 to 90 feet in ore without going through it. The ore body lies on a gentle slope to the westward, and is apparently well drained. It is covered by an average surface of 25 feet of clay and gravel, and the Minnesota Iron Company is now receiving bids for stripping off 300,000 yards of this surface for mining operations next summer. As there are very few granite boulders and little hardpan in this surface, steam shovel stripping will be practicable, which it is not, by the way, in some other Mesaba stripping mines. The ore in this vast deposit is a brown, and under it a blue, granular hematite, a good deal like that of the Biwabik. It assays about 60 to 65.30 iron, 0.020 to 0.037 phosphorus and about 3 silica, while the percentage of water is about as in all Mesaba ores. The purchase of the property by the Minnesota Company wipes out all intermediate titles and gives it an immediate connection with the fee holder and a 30 cent royalty. It is 2 miles from the line of the Duluth & Iron Range Road, and a branch will be built at once.

At the time of the organization of the Lake Superior Consolidated Iron Mines the story was that the Minnesota Iron Company had, got, and could get, practically nothing on the new range. As the situation has clarified, however, it is beginning to be recognized that the Minnesota has very respectable holdings on the Mesaba. These holdings, too, are in the way of being increased at no distant day. The Iron King is an enormous deposit, as is the Norman north of it. Both are surface mines, and both are absolutely controlled by the Minnesota under 30 cent and 25-cent leases. The Canton is a large underground mine of the company's, while the Franklin, which is a magnificent property, also underground, is closely identified with the Minnesota. In good times it alone should furnish 300,000 to 500,000 tons of freight annually. Hale has contracted a minimum tonnage of 50,000 tons a year for six years over this company's road and whatever ore the Cincinnati and many other properties

may ship will be over the Iron Range. So it will be seen that the road and the mining company are very well represented on the Mesaba.

It has been decided because of the cold weather and the rapid making of frost in the ground to suspend operations at the Mountain Iron, of the Consolidated. The work will be resumed about March 1. This leaves only two Mesaba mines in operation, the Canton, 200 men, and the Biwabik, 350.

MANUFACTURING.

Iron and Steel.

The Beaver Falls Mills, Beaver Falls, Pa., have closed down for annual repairs and stock taking. It is not probable that this plant will resume operations for some time yet as the new wage scale taking effect on January 1, 1894, has not yet been presented to the men.

The Pomeroy Rolling Mill, at Pomeroy, Ohio, operated by Cartwright, McCurdy & Co., Youngstown, Ohio, is in operation to about half capacity, the product being hoop iron and cotton ties. At this plant four reverberatory coal heating furnaces are now being erected on the 7-inch, 8 inch and 12-inch mills. Water tube boilers will be attached to each of these furnaces.

It is stated that the employees in the puddling department of the Hubbard Iron Company, at Hubbard, Ohio, are making arrangements to organize on the co-operative system and operate this plant under the management of Wm. F. Bonnell. At a meeting of the puddlers last week it was decided to secure a lease, and if possible purchase the necessary stock and light the fires this week. The employees propose to leave part of their wages as capital in order to carry on the business.

On Friday morning, the 29th ult., a notice was posted in the Beaver Falls Mills, at Beaver Falls, Pa., informing the men that the scale of wages for 1894 was on view at the superintendent's office. The men were allowed to see only that part of the scale applying to the departments in which they are employed. Enough was learned concerning it, however, to show that the reductions made range from 5 to 33 per cent., the higher priced men suffering the greatest cuts. The wages of laboring hands have not been affected, and they will continue to be paid on the basis of 12 cents per hour. In the wire nail department, under the old scale, the men were getting 25 cents per hour, while under the new scale they will be paid 22 cents per hour. In the wire mill department the men suffer a reduction of from ¾ to 3 cents per 100 pounds for drawing wire. In the rod mill department the wages of engineers have not been reduced. The reel hands, who were formerly paid \$1.80 per day, will be paid \$1.70 per day. The heaters have been cut about 33 per cent., but a change has been made so that each heater instead of having one furnace and one helper will now have two furnaces and two helpers, thus greatly increasing his tonnage, and by harder work his wages will not be reduced as greatly as the reduction would seem to imply. Four heaters will be thrown out of employment. All roll hands suffer a cut of from 10 to 7 cents per ton. It was stated to the men by the various superintendents that under the wages of the new scale the prospects for steady employment were very good.

The Iron Car Company, which concern succeeded the Iron Car Equipment Company, announce that the works in Huntingdon, Pa., will resume operations at an early date, giving employment to several hundred men.

At the end of the regular season the Johnson Company, Johnstown, Pa., took off the night turn in the switch department and reduced the day force, as is the usual custom, leaving just enough men at work to fill such orders as might be received. It is the intention of the firm to continue this policy for this department until the season trade opens again in the spring. The other departments of the plant of the Johnson Company have been running double turn right along, but were closed down last week for customary repairs, work being resumed again on Tuesday, the 2d inst.

The Reliance Wire & Iron Works of Milwaukee failed on December 26. Their plant

is stated to be the third largest institution of the kind in the United States. The officers are: President, Frank A. Hall; vice-president, W. W. Williams; secretary and treasurer, O. F. Lindeman. They occupy a new four-story building at 186 and 188 East Water street. The company made an assignment to J. H. Gillman, who gave a bond for \$50,000. President Hall reported that the nominal assets were \$50,000; the liabilities \$30,000, while the capital stock of the company was \$75,000.

It is reported that the Missouri Furnace Company, whose works are at South St. Louis, will resume operations at an early day, to supply Bessemer pig iron to the steel works at Belleville, Ill.

The 18-inch train at the Albany Iron Works, Troy, N. Y., was started this week in connection with the 14-inch and Belgian trains. This will give employment to more men than have been at work in several months.

At Ironton, Ohio, the plants of the Eagle Iron & Steel Company, Belfont Iron Works Company, and Kelly Nail & Iron Company, are all in operation, though not to full capacity.

Referring to the new wage scale which went into effect at the Homestead Steel Works, Homestead, Pa., on January 1, a synopsis of which was given in these columns last week, the following official statement concerning the scale has been made: "In regard to the readjustment of wages at Homestead, Beaver Fall, Upper and Lower Union Pittsburgh mills, for the year 1894, the wages paid at Homestead to date were those offered the Amalgamated Association in June, 1892, before the strike, the daily earnings thereunder being higher per capita than those which prevailed before the strike. While the readjustment meant a reduction in tonnage rates, if business could be secured the radical improvements made in machinery and methods would enable the employees to earn much higher wages than would be made at any other works in this country. At the other mills the wages paid to date were those prevailing in 'Union' mills in this vicinity prior to the reduction made by the Amalgamated Association in 1892, and the new earnings would be higher than are now made in Amalgamated mills. At none of the works of the company, are they asking common labor to work for less than 12 cents per hour." On Thursday, the 28th ult., the employees of the Upper Union Mills at Pittsburgh were paid off and at the same time were notified of the reductions in wages which also went into effect at this plant on the first day of the year. These reductions are not so large as were made at Homestead, but are said to range from 10 to 30 per cent. according to the class of labor. In answer to the above statement M. M. Garland, president of the Amalgamated Association states that the wages at Homestead up to December 31, 1892, were not the same as the scale offered to the Amalgamated Association in June, 1892, just previous to the strike. Mr. Garland states that at that time there was a reduction in wages in many of the high priced positions and an added reduction of eight per cent. straight in all departments. Since that time there have also been reductions in several other departments.

The special Conference Committee of creditors of the Pennsylvania Steel Company, Steelton, Pa., and Maryland Steel Company, Sparrow's Point, Md., to confer with the Stockholders' Committee and devise means to adjust the financial troubles of these concerns, announces that it "will be impossible to make any definite report to fellow creditors before some time in February at the earliest, as some of the figures which it is necessary the committee should have before them cannot be sooner obtained." The entire plant of the Pennsylvania Steel Company, at Steelton, Pa., with the exception of the frog switch and signal departments and two blast furnaces, have been closed down for an indefinite period. The management announces that as soon as sufficient orders are received to insure continuous running in any or all of the departments, work will be resumed.

The plant of the Tyler Tube & Pipe Company, at Washington, Pa., which has been closed for several weeks undergoing repairs and for the purpose of stock taking, resumed operations to nearly full capacity this week.

During the shut down of the Hainsworth steel plant of the Oliver Iron & Steel Company, at Pittsburgh, considerable labor saving machinery has been erected, and it is probable that this plant will resume opera-

tions on the manufacture of billets during his week.

At New Castle, Pa., a number of manufacturing concerns which have been idle more or less are again in operation, with good prospects for continuous running. Among those concerns who have resumed may be mentioned the Arethusa Iron Works, Etna Iron Works (Limited), New Castle Steel & Tin Plate Company, and New Castle Wire Nail Company.

The Cambria Iron Company, at Johnstown, Pa., have begun and are pushing the erection of a 28-inch rail mill, the estimated cost of which will reach \$1,000,000. The foundation has been laid and part of the construction machinery is in position.

Hinkle Furnace of the Ashland Iron & Steel Company, at Asbland, Wis., has closed down, to remain idle, it is stated, until June 1.

The Bethlehem Iron Company, at Bethlehem, Pa., have made a reduction in the wages of employees of all departments of the Bessemer plant, in the puddle mill and on the blast furnaces, ranging from 5 to 30 per cent.

The Valley Steel Company, Belleville, Ill., successors to the Belleville Steel Company, have elected the following officers: Chas. A. McNair, president; T. A. Meyenberg, vice-president; B. S. Adams, secretary, and F. W. Oliver, treasurer. The nail works were started on January 1, and it is proposed to start the steel works as early as trade demands require. The Waugh steel plant and rolling mill and the Western nail works have a joint capacity of 350 tons per day of light nails, channel bars, bar sizes and nails. These two mills comprise the Valley Steel Company. Both these plants have been closed down since June 1 on account of the prevailing dullness in the iron trade.

The Montgomery Iron Company of Port Kennedy, Pa., have made an assignment to the Guarantee Trust & Safe Deposit Company of Harrisburg, for the benefit of creditors. A. S. Patterson, the president of the company, is said to have stated that the liabilities are \$330,000. He did not think the company would pay 10 per cent. to creditors.

Haselton Furnace of the Andrews Brothers' Company, Youngstown, Ohio, has been making some good records in the production of foundry iron for some time past. The average daily output has been 175 tons, principally Nos. 1 and 2 foundry, while on Friday, December 29, the output was 202 tons.

At a recent meeting held in Philadelphia plans were submitted for the reorganization of Cofrode & Saylor, Incorporated, and the Reading Rolling Mill Company, which were simultaneously placed in the hands of receivers last spring. A committee was appointed to consider the proposed plans. The scheme of reorganization, to which the principal creditors have given their assent, contemplates the payment in full in cash of all the smaller creditors, involving more than three-fourths of the entire number, the remaining indebtedness to be paid in full face value with interest bearing obligations of the corporations, secured by mortgages on their real and personal property.

The Washburn & Moen Mfg. Company of Worcester, Mass., have made a reduction in salaries ranging from 10 to 20 per cent., affecting salaried employees only.

Wilkofsky Brothers, doing an extensive business as scrap iron dealers, at Akron, Ohio, have assigned. The firm had indorsed notes of the Akron Iron Company, and the suspension of that concern precipitated the failure of the former. It is believed that arrangements will be made that will allow the business to go on as usual.

The Onondaga Iron Works property, embracing some 50 acres, situated near Solvay, N. Y., has been sold for \$41,000. The property was mortgaged for \$100,000.

The 400 employees of the Phoenix Iron Company, at Phoenixville, Pa., have had their wages reduced from 10 to 15 per cent.

The Reading Rolling Mill, at Reading, Pa., has started up, giving employment to 350 men. It is stated that the firm have received an order which will keep the works running for some time.

The Taylor Iron & Steel Company, at High Bridge, N. J., have received the contract to make the new style armor piercing shell known as the "deck piercers."

The employees of the steel works of the Colorado Fuel & Iron Company, Pueblo,

Col., have been asked to sign the Pittsburgh scale of wages. The Bessemer steel works will start up March 1 on a contract for 26,000 tons for the Union Pacific Railroad.

Machinery.

A considerable portion of the new plant under erection for some time by Reeves Brothers, at Alliance, Ohio, has been completed. The first building, which is brick, is entirely completed and occupied, and in size is 90 feet wide and 200 feet long. The central space of this building will be controlled by a traveling crane. About 60 hands are now employed, and when in full operation employment can be given to 200 men. This building is equipped with the finest and largest machinery of its kind in the country, among which may be mentioned a hydraulic stationary riveter, with a 17½-foot gap; hydraulic flanger to flange up to 9 feet, round or square; bending rolls, 30 feet between housings, driven by independent reversing engines. Punching and shearing machine with 63-inch gap, capable of punching a 6½-inch diameter hole through ¾-inch steel plate. The firm have their own electric plant for lighting and power, and are now prepared to manufacture on a large scale boilers, storage tanks, iron buildings and plate and sheet iron work of all kinds. It will be the aim of this firm to give their customers the very best work at lowest possible cost. The office of the concern at Alliance is nearly completed, and is 36 feet wide by 34 feet long and 26 feet high. The basement is in two rooms, the first floor containing four rooms for office purposes and the second one large room for drawing. The vault is built from the basement to the roof, with access on first and second floors. In this building will be located the main offices of the firm after January 1, which are now located at Niles, Ohio. Next spring the firm expect to erect another shop building of 75 feet span and 200 feet long, and also other buildings the sizes of which have not been determined.

The Standard Underground Cable Company of Pittsburgh have declared the regular quarterly dividend of 1½ per cent.

Working to full capacity, and behind on their deliveries, is the gratifying report furnished by the Clayton Air Compressor Works of 43 Dey street, New York, as to their shops in Brooklyn. They have recently taken out several patents on a new triple compound high pressure air or gas compressor, used largely by manufacturers of carbonic acid gas.

The Niles Tool Company, Hamilton, Ohio, have posted notices calling the old night gang back to work. They will work ten hours per day instead of eight as heretofore.

Negotiations are pending at Lockport, N. Y., for the consolidation of the Cowles Electric Smelting & Aluminum Company of that city and the big concern at Pittsburgh, and the removal of the conjoined plant to Niagara Falls, where it is proposed to build the largest aluminum electric smelting factory in the world. It is understood from good authority that the stockholders of both the Cowles aluminum and the Pittsburgh aluminum companies have consented to the consolidation and removal to Niagara Falls. It is said that the consolidated companies have engaged 6000 horse-power of the Cataract Power Company, and that the construction of the new plant is practically under way.

The Petersburg Iron Works, consisting of several buildings, machinery, tools, fixtures, boilers, &c., at Petersburg, Va., have been sold at auction to Charles E. Hunter of Fredericksburg, and Col. C. P. E. Burghwyn of Richmond, for \$13,000.

At the Pond Machine Tool Works, Plainfield, N. J., the hours of labor have been reduced to 40 a week, and a reduction of 20 per cent. announced in the pay of salaried employees.

The Camden Iron Works, at Camden, N. J., which have been running with a reduced force on part time, have resumed operations in all departments.

At the machine shops and foundry of the James Hunter Machine Company, North Adams, Mass., a reduction of 10 to 15 per cent. was made in wages on the 1st inst.

The Union Foundry Company of Cata-sauqua, Pa., have reduced wages 15 per cent., taking effect January 1.

The American Machine Company, recently organized in England, with a capital of \$600,000, will, it is stated, build extensive works at Pawtucket, R. I.

At Chicago, an amended bill has been filed in the suit of the Griffin Wheel & Foundry Company against the Grant Locomotive Works asking for a receiver for the defendant concern.

George W. Fifield's machine shop, at Lowell, Mass., has been burned; loss, \$5000; insured.

P. P. Mast & Co., manufacturers of drills and farming implements, at Springfield, Ohio, announce a reduction of 10 per cent. in wages.

The Warren Foundry, at Phillipsburg, N. J., started up again on the 2d inst. with about one-half the usual force.

Fawcett's foundry, situated at Sackville, N. B., has been completely destroyed by fire, at a loss estimated at \$75,000.

Hardware.

The Hubley Mfg. Company is the title of a concern who have recently been organized at Lancaster, Pa. Henry Baumgardner is president of the company, and D. B. Shenk, treasurer. The board of directors consists of the following persons: Henry Baumgardner, John E. Hubley, F. H. Steacy, N. M. Woods, George N. Reynolds, M. L. Herr and D. B. Shenk. The capital stock has been fixed at \$200,000, and a charter will at once be applied for. The company will take up the patents, inventions and designs of the business carried on for the past few years by John E. Hubley and Henry Baumgardner in Lancaster, the business having outgrown its original limits and warranting a very considerable extension. The company are erecting new buildings on the main line of the Pennsylvania Railroad, which will be constructed of blue limestone. The buildings will be two stories high, and will have a frontage of 360 feet. In the new plant the company will manufacture a line of electric, steam and mechanical toys, indestructible malleable iron and steel toys, cast iron toys, electric motors, electric apparatus; also specialties in cabinet, stationers' and staple hardware, &c. The company expect to be in full operation by February 1. They hope to give employment to about 200 hands.

The bolt and nut works of J. H. Sternbergh & Son, Reading, Pa., are now working full time, 10 hours per day. Over 400 men are employed.

The Norwalk Lock Company, South Norwalk Conn., are running on full time with all of their 300 workmen employed. During the past week or two they report orders coming in freely. A cut of 3 to 5 per cent. in wages was made a month ago.

The Winchester Repeating Arms Company, New Haven, Conn., are employing their full complement of men, and a full time schedule is being followed out.

The Collins Axe Company, Collinsville, Conn., have for a month past been running full time with their entire force of workmen. The company's large South American trade shows no signs of falling off, and the outlook for the remainder of the winter is good.

Colt's Patent Fire Arms Mfg. Company, Hartford, Conn., have shut down for the purpose of taking inventory. They intended shutting down entire for two weeks, but an order recently received will keep a portion of the men employed during this time.

Benedict & Burnham Mfg. Company, Waterbury, Conn., state that their business has been gaining steadily since the latter part of September. Business during the past week or two has been the liveliest since July. During the past two weeks they have engaged 40 additional hands.

The Waterbury Brass Company, Waterbury, Conn., started up their new rolling mill on January 1.

The stockholders of the Belcher & Taylor Tool Mfg. Company, Springfield, Mass., held their twenty-eighth annual meeting on the 20th ult. The following persons were elected officers of the company: William F. McFarland, president; George S. Taylor, treasurer; Frederick Withrel, clerk; Charles A. Taylor and James H. West, auditors, and Emerson Gaylord, James B. Taylor, Arthur West, Charles A. Taylor and William P. McFarland, directors. The annual 6 per cent. dividend was declared.

The Phoenix Powder Works, East St. Louis, Ill., have started up.

The nail department of the Harrisburg Nail Works, Fairview, Pa., is now in operation.

The Joseph Le Comte Mfg. Company have been organized at Brooklyn, N. Y., for the

purpose of manufacturing sheet iron, metal and stamped ware, &c. The capital is \$100,000. The directors of the company are Joseph Le Comte and John Brunnemer of Brooklyn, and Victor S. Le Comte of New York City.

The Denver Hardware Mfg. Company, Denver, Col., have been awarded the contract for furnishing the hardware for the new State Capitol at Denver.

The American Brass and Rivet Company, Westfield, Mass., have sold out to the United States Whip Company.

The reports published in the daily press to the effect that Randolph & Clowes, Waterbury, Conn., would shut down their works indefinitely is without foundation. Although not employing as many men in some departments as they did last spring, they have been running ten hours per day six days a week, and expect to continue doing so except for the usual annual shut down of from a week to ten days at the latter part of the year for inventory and repairs.

The employees of the Peck, Stow & Wilcox Company, Aetna Nut Company and Southington Cutlery Company, Southington, Conn., have entered an almost unanimous protest against the Wilson tariff bill through a petition which will be presented to Congress by Representative Sperry of the first Connecticut district.

Billings & Spencer Company, Hartford, Conn., are running on full time, but not with quite the full working force.

Until recently the wire work factory of D. D. Wass was located at the corner of First and Natoma streets, San Francisco, but the increasing demands of his extensive business have necessitated its removal to 51 First street, near Market. Here Mr. Wass has the use of the entire building, which is thoroughly equipped with new machinery and all the latest appliances known to the trade. The line of goods manufactured is large and varied. It includes ornamental wire work of every description, wrought iron and wire fencing, pipe and cemetery railing, roof cresting and burglar proof window and skylight guards and desk and office railings.

The affairs of the Ashley Wire Company, at Joliet, Ill., have taken another legal twist. Upon application of the First National Bank, George H. Bush has been appointed receiver, taking the plant from the sheriff's possession. This change will put all creditors on an equal footing. Arrangements were being made to start the mill January 1, but the new developments made it impossible to do so.

The National Cutlery Company have been organized at Rockford, Ill., with a capital stock of \$75,000. The managers of the company propose to use the new Anderson machine, which is claimed to effect a very great saving of labor in the manufacture of knives and forks. The board of directors is composed of H. R. Ross, Chas. H. Rollins and J. W. Meacham, Chicago; A. D. Forbes, Chas. M. Utter, George E. King, J. H. Sherratt, George B. Kelley and Wm. Lathrop of Rockford.

The 200 employees of the Forehand Arms Company, Worcester, Mass., at a recent meeting appointed two delegates to visit Washington and present a petition protesting against the passage of the Wilson tariff bill.

Some of the cutlery manufacturers have notified their employees that a reduction in wages will take effect on January 1.

The Atwater Mfg. Company, Plantsville, Conn., have notified their employees of a 10 per cent. reduction in wages. The company employ about 90 hands.

The Peck, Stow & Wilcox Company, Southington, Conn., have made reductions in wages averaging about 25 per cent. on certain classes of work.

Miscellaneous.

The Mansfield Coal & Coke Company of Pittsburgh have declared the regular semi-annual dividend of 3 per cent.

The Natural Gas Company of West Virginia have declared a quarterly dividend of 1 per cent.

The style of the firm heretofore known as the John Porter Fire Brick Company, New Cumberland, W. Va., has been changed to the Mack Mfg. Company, the change having gone into effect on January 1. The company were recently reorganized because of confusion of buyers with the firm of Capt. John Porter and John M. Mack of Philadelphia. G. B. Boren is general man-

ager of the firm, and Thomas McConicle is secretary. The main office is located in Pittsburgh.

Last week notices were posted at No. 1 Works of the Oliver Coke & Furnace Company in the Connellsville region informing the men that a reduction of 16½ per cent. would go into effect on January 2, 1894. This reduction applies to every one in the employ of the concern, and unless it is accepted the plant will be closed for an indefinite period.

The Laconia Car Company of Laconia, N. H., will hereafter make a specialty of street railway cars of all kinds. Their work has hitherto been on steam railroad cars, and this is a new departure. Their street railway department will be in charge of F. E. Huntress, 8 Oliver street, Boston, Mass.

By reason of the failure of Robert L. Walker, president of the Youngstown Stamping Company, Youngstown, Ohio, that concern was placed in the hands of Receiver W. C. Hine some months since. Phelps, Dodge & Co., New York City, who hold a judgment against the concern for \$3000, made application at Youngstown last week for the appointment of a commissioner to ascertain who are the stockholders, in order that they may be compelled to pay the account.

The Flat Top, West Virginia, coal and coke operators met in convention in Roanoke, Va., last week and passed resolutions protesting against the removal of the duty on coal. It is stated that representatives of 36 companies, with an aggregate capital of \$50,000,000 were present.

Geo. H. Anderson & Co., fire brick manufacturers, of Pittsburgh, during the past few months have furnished new and complete generators and superheaters to a number of gas companies for producing illuminating gas out of water and oil. Two complete furnaces were made for the Richmond Gas Company, Richmond, Va., and one each for Salem, Ohio; Walkesbarre, Pa.; Middletown, N. Y.; Canton, Ohio, and a number of others are now under contract.

The San Francisco Bridge Company, San Francisco, Cal., have assigned. The liabilities are about \$175,000; the assets are not stated.

After having been virtually idle since August 15, Russell & Co., manufacturers of agricultural implements at Massillon, Ohio, announce that they will resume work February 1. About 800 men are employed when the works are in full operation.

The Bluffton Car Wheel Works at Bluffton, Ala., are soon to be put in operation again.

It is stated that operations will begin in the steel barge works at West Superior, Wis., about January 15.

The Iron Car and Equipment Company who went out of existence several months ago and who formerly conducted car works at Huntingdon, Pa., have been succeeded by a new company known as the Iron Car Company. It is said that operations will be resumed at an early date.

One hundred and ten employees of the brass foundry of Peck Brothers & Co., New Haven, Conn., went on strike on account of a reduction in wages of 15 per cent. Both sides are defiant.

The Aluminum Industry Company have begun operations in their new works at Providence, R. I.

The electrical engineering and designing departments of the Thomson-Houston Electric Works are to be removed from Lynn, Mass., to the works at Schenectady, N. Y.

At a meeting of the stockholders of the Rock Island Plow Company at Rock Island, Ill., on the 14th inst., the proposition to double the capital stock by raising it from \$300,000 to \$600,000, was acted upon favorably. The new officers of the company are as follows: President and treasurer, Philip Mitchell; vice-president and general manager, F. A. Head; secretary, W. J. Kahlke; directors, F. H. Griggs, P. L. Mitchell, A. C. Dart, Frank Mixer, C. Truesdale, F. A. Head, and Philip Mitchell.

At the meeting of the board of directors of the Moline Plow Company on the same date, the vacancy in the office of vice-president, caused by the retirement of Andrew Friberg from the company, was filled by the election of G. A. Stephens. Frank G. Allen was elected to succeed G. A. Stephens as secretary, and the offices of assistant secretary and treasurer were discontinued.

Charles Codman's Hay Press Mfg. Works, at Watertown, N. Y., were destroyed by fire on the morning of December 20. Some of the contents were saved. There was no insurance, and the damage is estimated at \$20,000.

Among recently authorized corporations in Illinois are the following: White Mfg. Company, Chicago; hardware specialties; capital stock, \$15,000; incorporators, Ripley J. White, Percy M. Bingham, Daniel E. Burtis, John C. Dupe, Joseph F. Shephard, Deare, Huet, Brooks & Moneuse Company, Chicago; to manufacture furnaces, boilers, &c.; capital stock, \$150,000; incorporators, John S. Brown, E. M. Jones and Harry B. Gutches. Paul J. Daemicke Company, Chicago; to manufacture refrigerators, store and hotel fixtures, &c.; capital stock, \$75,000; incorporators, Paul J. Daemicke, John Tobin, W. F. Huenning.

Notices have been posted by the shipyard and shops of the Globe Iron Works Company, Cleveland, Ohio, notifying the employees of a 10 per cent. reduction.

Henry N. Hubbard, manufacturer of agricultural implements at 9 Cliff street, New York, and proprietor of the New York Agricultural Works at Bonton, N. J., has made an assignment to John S. Garrison. A list of 69 creditors, whose claims aggregate \$5,745, is attached to the assignment. He has been in business since 1877, and a year ago claimed a capital of \$10,000.

The J. Painter & Sons Company, Pittsburgh, manufacturers of iron and steel hoops and cotton ties, have lately put in a larger engine at one of their mills and are making their trains heavier throughout. This firm have not recently built any new mills, but have replaced some worn out machinery. Their capacity for production has not been increased, except possibly a slight increase in the capacity of the mills on account of modern practices.

The Tyler Tube & Pipe Company, Washington, Pa., who have lately been duplicating their plant, closed down during Christmas week for the purpose of making some necessary repairs and putting in the housing for the finishing mill in the new plant. This mill is now one of the best equipped in the country for the manufacture of high grade charcoal iron tubes. The firm have two large regenerating lap weld furnaces designed and built by the S. R. Smythe Company, engineers and contractors, Pittsburgh, and the machinery is of the most modern pattern. The entire plant of the Tyler Tube & Pipe Company resumed operations on Tuesday, the 2d inst., with good prospects for continuing in operation right along.

The Aultman & Taylor Company, manufacturers of threshing machinery, at Mansfield, Ohio, have started up their shops with a full force of men. The company state that the prospects for a good year's business are very encouraging. About 300 men are employed.

A press dispatch from Youngstown, Ohio, says that the Mahoning and Shenango Valley Iron Manufacturers' Association have served notice on the officials of the Amalgamated Association demanding a reduction in the present puddling scale of \$4.75 per ton to \$3.75, alleging that by reason of the low wages paid puddlers in non-union and Eastern mills they are compelled to ask the reduction.

The opening of California's Midwinter Fair, at San Francisco, on New Year's Day was attended by most favorable weather and a large and enthusiastic crowd.

Sealed proposals will be received at the office of the Supervising Architect at Washington, D. C., until January 12, for the stone work and terra cotta work, iron and wood floor, ceiling and roof construction, roof covering, &c., for the superstructure of the United States Post Office building, Columbus, Ga. Copies of the drawings and specifications may be obtained from the Supervising Architect at Washington or at the office of the Superintendent, Columbus.

TRADE REPORT

The reviews of the Chicago, Philadelphia and Pittsburgh markets which we print this week trace clearly the mournful developments in the Iron trade during the worst year in the history of that great industry. The misfortune is that its closing week has passed with even deeper gloom than any of the whole of 1893, and that as yet there are no signs which can inspire sellers with confidence or cause buyers to waver in the conviction that their next contract will be closed at better terms than they have yet secured. When buyers are told by the largest manufacturer in the country that they need only make their own terms to secure material it will take startling developments against them to put them in a frame of mind which will make advances possible.

The demands for a readjustment of prices on old contracts to conform to values actually ruling at time of delivery have been numerous enough without offering additional temptations to buyers to multiply them. The flexibility of contracts in this respect has been appalling, but in their helpless condition manufacturers have found it practically impossible to resist such unfair demands.

Transactions during the week under review have not been numerous. One of the most encouraging reports is that foreign interests have taken further quantities of Southern warrants, of which they are estimated to hold now about 35,000 tons. While, of course, this Iron may have a checking effect upon any rapid rise when it does come, the fact that it has been purchased proves that at last somebody has faith in the statement that bottom has been reached.

In Pittsburgh the extremely low price of \$10.65 for Bessemer Pig has been touched and Gray forge has sold under \$10.

The struggle in Soft Steel Billets continues. It is reported that a sale by a mill not far from Pittsburgh netted the works \$16.10, which is the lowest price yet recorded. The fight for work in territory between Western Pennsylvania and the Chicago district is growing lively and has led to the capture of orders by producers in the latter section.

The markets have not been thoroughly tested lately in the whole line of Finished Iron and Steel. While many sellers will withdraw from a contest in which success only means piling up losses, there will remain a sufficient number of strong concerns to make the circus lively.

In Iron Ore very little has been done. The statement that an Eastern furnace company has purchased 250,000 tons of non-Bessemer at \$2.40, Buffalo, is not strictly correct, since in reality the company in question has acquired an interest in the mine. It is reported, however, that Mesaba Bessemer has actually been offered at 4¢ per unit, lower lake ports.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., }
PHILADELPHIA, Pa., January 2, 1894. }

The year 1893 will be long remembered as the worst which has ever been experienced by manufacturers of Iron and Steel. The opening of the year was not such as to give great hopes in regard to the business outlook, neither was there anything to indicate the extraordinary collapse which set in during the summer months. The fact that important orders were pending from the shipyards and other large consumers, kept things in fairly good shape for a few weeks, but when something like 50,000 tons of Plates and Shapes were placed at figures which up to that date were unknown, the entire market commenced to show signs of weakness. From that date to the present—nearly a year—there has been practically nothing but a continual chipping away, and prices to-day are not only without precedent, but are lower than the most pronounced pessimist would have thought possible. Some decline has been met with in Pig Iron, \$1.50 to \$2 per ton; some also in Billets, \$5 to \$6 per ton, but in Finished Material it is difficult to say what the decline is, except that it is fully \$10 on the lower grades, and probably \$15 to \$20 on the higher qualities; but there is no price to anything to-day, so that comparisons can only be made in general terms. Early in the year confidence received a severe blow by the suspension of payments by the Pottstown Iron Company, the Pennsylvania Steel Company, the Maryland Steel Company, the Reading Rolling Mill Company, the Philadelphia Bridge Works, and still later by the Wellman Iron & Steel Company. Receiverships for the Reading and Northern Pacific Railroad companies also had a depressing influence, so that from January 1 to December 30 there was one continuous line of disaster. With such a record for 1893 it is surely not unreasonable to expect a decided improvement during 1894. At the moment there are no indications of a turn in the tide. In some respects the outlook is the reverse of encouraging, though there is a general belief that some time during 1894 business will assume its normal condition, but it is not in sight yet.

Pig Iron.—The market for Pig Iron has been steadier than might be supposed considering the extreme fluctuations in other material. One reason, perhaps, is that Pig Iron led the way in the decline during the previous year and had gone so far that there was very little room for further reductions. Eastern prices have been more uniform than those in the West, partly because no Bessemer of any account has been made here of late months and partly because furnaces running on foundry and mill Irons decreased their output in anticipation of less favorable conditions. The result has been a decline averaging not more than \$2 per ton, and in some cases less than that. At the same time it will be noted that Pig Iron is at the lowest figures ever recorded, and lower perhaps than it can be produced for, except in a few isolated cases. There is nothing in the situation lately to cause any material change from present conditions. Those who have followed the monthly statements of furnaces in blast will see that production is a little over 90,000 tons per week, against something over 170,000 a year ago. This indicates an average reduction in the volume of

business of 40 % compared with that during the early portion of 1893. The decrease in production of the furnaces west of the Alleghenies is about 49 %, and of those East a trifle less than 52 %, showing that the East is doing less in proportion than those in the West. The supply of Pig Metal is ample for all requirements, however, and unless there is some improvement in demand stocks will again begin to accumulate. Consumers show no disposition to place orders, however, and while they could engage deliveries for 60 or 90 days to come at as low or lower figures than ever before, they appear to be quite indifferent and take only such quantities as they need to cover present necessities. Prices vary according to circumstances, but ordinarily seaboard deliveries are about \$12, \$13 and \$14 for the three leading grades and \$11 @ \$11.25 for an ordinary quality, but the market is unsettled and quotations subject to modification, according to quantity, brand, delivery, terms of settlement, &c.

Steel Billets.—There have been fewer changes in prices than for several years past, and such as there were, were all on the down grade. The year began with prices at about \$24, "sagging off" to about \$23.25 in February, and continuing at that to \$24 until July, since which date there has been a gradual decline to \$19, at which figures they are now offered. The demand has been very light, however, and at this writing there seems to be very little disposition to place orders for long delivery even at \$19. From various surface indications it is probably safe to assume that \$19 would be shaded on a firm offer from a good buyer, but as already stated, consumers are not attracted by low prices, the main point with them being that they are not using more than one-half their usual quantity, and therefore place orders only as may be necessary to cover their own sales of the product.

Finished Material.—The first half of the year was one of a fair degree of activity, although at extremely low prices, but as the mills were kept moderately well employed, manufacturers had no special reason to complain. The last half of the year, however, was probably the worst that has ever been known, both as regards prices and the volume of business, although the former naturally hinges on the latter. It is impossible to give any satisfactory explanation of the collapse; all that is surely known is that business dropped off to almost nothing, while competition to secure what little there was broke prices beyond anything ever heard of. The Cramp Shipbuilding Company's order saved the market for awhile, the idea being that with 40,000 to 50,000 tons for them, and nearly as much more for bridge and architectural purposes, and for riveted water pipe, mills ought to get on fairly well. The last-mentioned orders were nearly all suspended, however, and as countermands from other large consumers were more numerous than new specifications, it goes without saying that manufacturers have had a wearisome time during the past six months. Under these circumstances prices shrunk alarmingly, the worst feature being that the higher qualities have been made to suffer to an extent which leaves quotations for Shell and Flange lower than should be made for common qualities, and at the present time without any prospect of improvement. Inquiries are few, orders on hand are light, and if Mr. Carnegie's instructions are obeyed prices will be

worse before they are better. The open letter from Mr. Carnegie states that in order to give his men plenty of work his agents are to take every order that can be had, East, West, North or South, without regard to price. The tone of the letter implies that this is an act of philanthropy on his part, but it is not likely to be so regarded by others. In the first place, the men are to accept a big cut in wages to enable the company to undersell his competitors, but as the latter will also have to reduce wages to meet Carnegie's prices or close their mills and discharge their men it is hard to see where the philanthropy comes in. It will not bring a ton of extra business into the market, but it will compel his own men as well as others to accept less for their labor and the manufacturer less for his output. The whole scheme involves lower wages and lower prices all around, without any compensation in the way of increased business. Under such conditions it is useless to attempt to quote prices. Mr. Carnegie's instructions to his agents are in effect that they are to take orders at prices so low that nobody else is to get a spoonful of business until his mills are crowded to their full capacity. There is no business of any account in sight just now; what there will be later on is a problem yet to be solved, and the same may be said in regard to prices, but they are certain to be lower than any yet quoted, unless something very unforeseen occurs.

Jerome Keeley & Co. have removed their offices from 303 Walnut street to the Philadelphia Bank Building, 421 Chestnut street. The drift is in that direction, and with the removal of the Pennsylvania Railway Company's offices, the Iron trade is likely to have its headquarters more toward Chestnut street than ever before.

Thos. W. Siphers & Co., agents for Aetna-Standard Iron & Steel Company, have also removed to 421 Chestnut street.

J. W. Hoffman & Co. are settled in their new offices in the Bullitt Building.

Henry P. Nash, for many years connected with the well-known house of Naylor & Co., has commenced business on his own account and will have offices in the Bullitt Building. Mr. Nash will represent Naylor & Co. in Philadelphia and Eastern Pennsylvania for the sale of their Iron Ores, &c.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, January 3, 1894.

Pig Iron.—Contracts have been placed for several round lots of local Coke Iron for delivery running through the first six months of this year. Special terms are usual on transactions of this character and low prices must be made now to meet the views of buyers to induce them to cover their requirements so far into the future. Southern sellers report a very small trade with prices comparatively firm on No. 3 Foundry and No. 2 soft, of which stocks have been pretty well cleaned up, but on other grades there is considerable pressure to sell. Freight rates from the South will be advanced 20¢ per ton on January 15. Lake Superior Charcoal is very quiet, with no

sales reported now in small lots. Quotations are now as follows for cash:

Lake Superior Charcoal.....	\$15.50 @	\$16.00
Local Coke Foundry, No. 1....	13.00 @	13.50
Local Coke Foundry, No. 2....	12.50 @	12.75
Local Coke Foundry, No. 3....	12.00 @	12.50
Local Scotch.....	13.50 @	14.00
Ohio Strong Softeners No. 1....	15.50 @	16.00
Southern Silvery, No. 1..... @	13.75
Southern Silvery, No. 2..... @	13.25
Southern Coke, No. 2.....	11.90 @	12.15
Southern Coke, No. 3.....	11.40 @	11.65
Southern, No. 1, Soft.....	12.15 @	12.40
Southern, No. 2, Soft.....	11.40 @	11.65
Tennessee Charcoal, No. 1....	16.00 @	16.50
Tennessee Charcoal, No. 2.... @	15.00
Southern Gray Forge.....	10.60 @	10.85
Alabama Car Wheel.....	18.00 @	18.50
Jackson County Silvery.....	16.00 @	16.50
Other Ohio Silvery.....	15.00 @	15.50

Bars.—Inquiries from wagon makers excite the hope that this interest may develop considerable business in the near future. Car works show a little improvement and jobbers are buying to some extent, but trade generally has not been active during the past week. Quotations are continued at 1.30¢ @ 1.35¢, Chicago, for either Iron or Soft Steel, with concessions on good specifications. Small lots from stock are quoted at 1.55¢ @ 1.65¢, according to quantity.

Structural Material.—No new developments have occurred in this line and inquiries are light both for buildings and bridges. Quotations are as follows, Chicago delivery: Beams, 1.65¢ @ 1.75¢; Tees, 1.90¢ @ 2¢; Angles and Universal Plates, 1.60¢ @ 1.65¢. Small lots are sold from stock at an advance of 10¢ @ 15¢ per 100 above these prices.

Plates.—The outlook continues better for work among the manufacturers, but thus far not much new business has come forward. Mill shipments, Chicago delivery, are quotable as follows: Tank Steel, 1.55¢ @ 1.65¢; Shell Steel, 1.75¢ @ 1.85¢; Flange Steel, 1.95¢ @ 2.05¢; Fire Box, 2.75¢ @ 5¢. Store prices now prevail as follows: Iron or Steel Sheets, Nos. 10 to 14, 2¢ @ 2.10¢; Tank Steel, 1.90¢ @ 2¢; Shell Steel, 2.20¢ @ 2.40¢; Flange Steel, 2.50¢ @ 2.65¢; Boiler Tubes, 70 and 5¢ off.

Sheets.—The same state of affairs prevails in this branch of trade as previously reported, and mill shipments of No. 27 Common Iron are quoted at 2.65¢ @ 2.70¢, Chicago, and Juniata Galvanized at 75 and 10¢ off. Small lots from stock are selling at 2.90¢ @ 3¢ for No. 27 Common and 70 and 10¢ off for Juniata Galvanized. Sheet Copper is unchanged at 25¢ @ 30¢ off, according to quantity.

Merchant Steel.—Some business has transpired with Agricultural Implement manufacturers, but those now buying are cutting down contracts more than ever. Prices are unchanged. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery, Tire and Open Hearth Spring Steel, 1.90¢ @ 2¢; Ordinary Bessemer Machinery, 1.60¢ @ 1.65¢; Ordinary Bessemer Tire, 1.55¢ @ 1.60¢; Ordinary Tool Steel, 6¢ @ 7¢; Specials, 12¢ and upward.

Billets.—The Joliet Works have shut down for January, but will resume operations in February. There are no inquiries in the market at present, and while quotations are nominally unchanged at \$19.25 @ \$19.50, much would depend on the character of the order in making the price.

Rails.—The week has been quiet in Steel Rails. Western roads are coming into the market slowly and thus far no time has been fixed for the starting up of the local Rail mills. Prices are unchanged at \$25 @ \$27, according to

quantity. Splice Bars continue to be quoted at 1.55¢ @ 1.60¢; Track Bolts with Hexagon Nuts, 2.55¢ @ 2.60¢, and Spikes, 1.90¢ @ 1.95¢.

Old Rails and Car Wheels.—A good sized quantity of Old Iron Rails has been sold recently at less than equivalent to \$13, Chicago. Old Steel Rails are extremely dull, with quotations ranging from \$7.50 to \$10, according to length. Speculative transactions are occurring in Old Car Wheels at about \$11.

Scrap.—Consumers are buying very little and dealers continue to quote as before: No. 1 Forge, \$11; No. 1 Mill, \$8.25 @ \$8.50; Sheet Iron, \$4.50; Pipes and Flues, \$8; Axles, \$16; Horseshoes, \$11; Fish Plates, \$12; Spikes and Bolts, \$10; Cast Borings, \$4.50; Wrought Turnings, \$6.50; Axle Turnings, \$8; Heavy Cast, \$9.50; Stove Plate, \$7.75; Malleable Cast, \$8; Mixed Steel, \$7, gross ton; Leaf Steel, \$14.50.

Metals.—Lake Copper is quoted at 10½¢ for carloads and Casting Copper at 10¢, with little doing. Spelter is very dull, with sellers quoting 3.35¢. Lead has receded to 3.05¢, with but little business reported.

The Swarts Iron & Metal Company, Scrap Iron dealers, 551 to 557 State street, Chicago, have issued an artistic calendar for 1894, suitable for hanging. Leaves for each month are attached to a large card lithographed in colors.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts., CINCINNATI, January 3, 1894.

There have been no favorable developments in the market for Pig Iron during the week, and if there is nothing adverse to report it is simply because there was no trade, for it is evident that the market is a weak one, and sales could only be effected by offering inducements that would command the attention of buyers; but there has been no such urgency to sell, and so prices remain nominally unchanged. Of course, little business was expected during the holiday week, but such an utter absence of demand could hardly have been anticipated, for even the jobbing foundries in this district have taken little individually and in the aggregate, and the East has not done much better, 200 tons being the largest order, but more frequently single car lots. The volume of business during the month of December was scarcely more than one-half as much as the corresponding month in 1892, and the outlook for January has few encouraging features. Buyers believe that they will lose nothing by waiting, and that the chances are strongly in their favor, but the stronger Southern Iron companies appear to have a considerable degree of confidence in the future. Quotations are as follows:

Foundry.

Southern Coke, No. 1.....	\$11.75 @	\$12.10
Southern Coke, No. 2.....	10.75 @	11.00
Southern Coke, No. 3.....	10.25 @	10.50
Ohio Soft Stone Coal, No. 1....	15.50 @	16.00
Ohio Soft Stone Coal, No. 2....	15.50 @	14.75
Lake Superior Coke, No. 1.....	15.00 @	15.25
Lake Superior Coke, No. 2.....	14.00 @	14.25
Hanging Rock Charcoal, No. 1..	18.50 @	19.00
Hanging Rock Charcoal, No. 2..	17.50 @	18.00
Tennessee Charcoal, No. 1.....	14.00 @	14.25
Tennessee Charcoal, No. 2.....	13.00 @	13.25

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	17.75 @	18.00
Lake Superior Car Wheel and Malleable.....	17.00 @	17.25

Forge.

Gray Forge.....	9.75 @ 10.00
Mottled Coke.....	9.50 @ 9.75

D. L. Cobb has been appointed sales agent for the Sloss Iron & Steel Company for the Louisville territory. His headquarters will be at 413 Columbia Building, Louisville, Ky.

Pittsburgh.*(By Mail.)*

Office of *The Iron Age*, Hamilton Building,
PITTSBURGH, January 2, 1894.

The year 1893, just closed, will pass into history as the most disastrous by far that the Iron and Steel trades have ever experienced. The opening of the year was not a favorable one, either in the direction of demand or prices; and as the year advanced prices declined lower and lower, until they reached a point that even to the most favorably situated concerns meant little or no profit. Notwithstanding the fact that prices were much lower than ever before, and in some cases below cost of production, the volume of business did not expand, but on the contrary grew less and less; and when December was reached business was practically at a standstill. About the middle of the year, or in June, to be more exact, the wage scales in mills governed by the Amalgamated Association came up for annual settlement; and after many conferences, some of which were held as late as November, manufacturers finally secured reductions in wages which were made absolutely necessary by the low prices ruling for all kinds of Iron and Steel products. The year was marked by the failure of quite a number of large firms, but these were confined principally to the East, a comparatively small number of Pittsburgh concerns being forced to the wall. Of course it is too early in the year to make any predictions as to whether 1894 will be a repetition of 1893 to the Iron and Steel makers, but it is very safe to say that there will be no such declines in prices this year as took place last year. Such an occurrence is absolutely impossible, and while we may yet have slightly lower prices on some lines of manufactures, it is pretty evident that bottom has about been reached on everything. This being the case, and we do not believe our deductions can be successfully questioned, it would seem certain that early in the year we will have an increased volume of business. Already appearances indicate that just as soon as the tariff bill has been disposed of we will have an increase in orders, the amount of such increase depending largely on whether the bill goes through as it has been reported, or whether such changes will be made as will permit home manufacturers to control the trade of this country. If the bill as it now stands is passed it will take our manufacturers a long time to put their business in such condition as will be necessary under its provisions, and until this is done buying will be greatly restricted, and the better times that we all hope for will be longer coming, and perhaps may not come at all.

Pig Iron.—The last week of 1893 did not bring out any changes in the Pig Iron situation. Buying continues very light, prices are not strong and the market is weak. In January, 1893, Bessemer Pig was selling at \$13.60 @ \$13.75, f.o.b. Pittsburgh, and the de-

mand was fairly good. In February it had declined still further and was quoted at \$13.15 @ \$13.25, with the demand only fair. From that time on the decline in price was gradual and constant, except for occasional spurts, when there would be temporary advances of 25¢ @ 50¢ per ton. In July came the closing down of the Steel plants and a consequent large falling off in demand, which brought prices down at a much faster gait and forced a large number of furnaces to go out of blast, the decrease in production on September 1 being fully 50%, if not more. As the year drew nearer to a close prices went still lower, and in the last week or two of December \$10.75, Pittsburgh, for standard grades of Bessemer was an open price, and even this has been shaded, a sale of 500 tons for January delivery having been made last week at a price equal to \$10.65, Pittsburgh. During the year there was a decline of fully \$3 per ton in Bessemer Pig, which hardly seems credible, but which is, nevertheless, true. With the extraordinarily low prices ruling for Ore and Coke, coupled with the reductions made in blast furnace labor, it is the belief of those in the trade that prices on Bessemer Pig will of necessity be low, although higher prices than those noted above are not impossible, but are altogether probable. The conditions governing the year in Bessemer Pig were also largely reflected in Gray Forge. The low price reached early in the year for Soft Steel Billets naturally restricted the demand for Gray Forge, many consumers going over to Billets altogether, while others only rolled Iron when orders demanded it. In the first week of January, 1893, Gray Forge was selling at \$12.35 @ \$12.50, Pittsburgh, and there was a gradual decline in prices during the year until \$10, Pittsburgh, was reached, and if reports are true even this low price has been slightly shaded. In Foundry Iron there was a decline of about \$2 or \$2.50 per ton, and the demand for the last half of the year was considerably below that for the first half. With Bessemer Pig ruling at \$10.65 @ \$10.75, Pittsburgh, Gray Forge at \$10 and less, and No. 1 Foundry at \$11.75 @ \$12, it hardly seems possible that values can go much lower, while if an improved demand should be met a slight recovery in prices early this year is not improbable.

Billets.—A review of the Soft Steel market for 1893 presents some features of more than ordinary interest, and what early in the year would have been pronounced utterly impossible has since been demonstrated in such a manner that contradiction cannot be made. By a Steel maker, or even buyer, the prediction that Billets would touch \$16.50, Pittsburgh, during 1893 would have been received with ridicule, but we all know that such a price has been made in more than one transaction; in fact, the demand for some time has been very light, and there is a possibility that an order for large tonnage, with cash settlements, would shade that price to slight extent. Early in January Steel Billets were quiet at \$21.75 @ \$22, f.o.b. mill, and before the month had expired \$21.25 was reached. About the middle of February the market toned up and prices advanced from 50¢ to 75¢ per ton. This advance was more than sustained, for early in March sales of Billets were made at prices equal to \$22.25 @ \$22.50, Pittsburgh. In the latter part of March prices had gone to \$23, with most of the mills sold up for two or three months. At this time

the market was largely influenced by the prospect of labor troubles, and Steel makers generally were refusing to sell beyond July 1. In the first week of April the market commenced to decline, buyers coming to the belief that prices would not go any higher and would probably go lower. That this was a correct forecast of the market is shown by the fact that in the last week in April sales were made at prices equal to \$21.50 @ \$21.75 at makers' mill. Toward June prices again recovered to some extent, and on June 1 Billets were firm at \$21.75 @ \$22, f.o.b. mill. Before June had gone prices again went off and declined to \$21.50, with the market bare of sales. On July 1 came the shut down of the Steel plants and rolling mills, pending adjustments of wage scales, which carried with it a large falling off in consumption of Steel. During July prices of Steel were merely nominal and ranged from \$21.50, the highest, to \$20.50, the lowest. With August came the beginning of the business depression and the price of Steel, owing to falling off in demand and keen competition among makers, was gradually forced down, each month showing a lower range of prices than the preceding one, and when the latter part of December came the market was represented by the quotation of \$16.50, f.o.b. mill. As to the future of the market little can be said. It does not seem possible for prices to go much lower, but until there has been sufficient increase in demand to keep the mills busy there is not much encouragement for the future. During the year the highest price realized for Billets was about \$23, and the lowest about \$16.50, showing a decline of fully \$6.50 per ton.

Ferromanganese.—This article also felt the severe depression in business, and from \$61, which was the ruling price early in January, the price steadily declined during the year until \$51 @ \$51.50 was reached in December, showing a reduction of fully \$10 per ton during the year.

Finished Material.—While the demoralization in business was particularly felt in Pig Iron and Billets it also extended to Finished Material, and prices on all lines have declined to an alarming degree and have reached a level that early in the year would have been thought impossible. Of course, some particular products, such as Beams, Plates and Bars, have perhaps suffered most, yet not a single finished article in Iron and Steel has escaped. In Beams and Channels we find that the price early in January was 2¢ @ 2.10¢, f.o.b. mill, for sizes up to 15 inches. In December the price was down to 1.45¢, with reports of sales at 1.40¢ at mill, showing a decline of \$10 @ \$12 per ton. Angle and Universal Plates in January were quoted at 1.70¢ @ 1.75¢, and in December at 1.45¢ @ 1.50¢, showing a decline of fully \$5 per ton. Report has it that even 1.25¢ at mill has been done on Universal Plates. Tees in January were 2.10¢ @ 2.15¢, and in December 1.70¢ @ 1.75¢, a decline of about \$8 per ton. Perhaps Tank Steel has suffered most, as in January it was ruling at 1.70¢ @ 1.80¢, while in December 1.30¢ @ 1.35¢ represented the market, thus showing a reduction in price during the year of \$8 @ \$9 per ton. Flange Steel in January was 2.05¢ @ 2.15¢ and in December 1.65¢ @ 1.75¢, a decline of about \$8 per ton. In Shell Steel the range in values was about the same. In the Bar Iron trade the de-

pression was as severely felt in any other department, and prices have shown a decline of \$3 @ \$4 per ton. In January Steel Bars were ruling at 1.60¢ @ 1.65¢ and in December at 1.30¢ @ 1.35¢, and even these very low prices are occasionally shaded for desirable specifications. Iron Bars in January were 1.45¢ @ 1.50¢ and in December 1.25¢ @ 1.30¢, and it is hardly necessary to add that these prices have also felt the knife. From July to November the Valley mills were closed down on account of labor troubles and at this writing are not working to anything like full capacity, which, of course, is true of Pittsburgh and all other sections. The Bar Iron trade for the last six months of 1893 was the worst in its history and prices were the lowest. An improvement is confidently expected, however, before the year is much older. In Wire Rods we find there was a decline of fully \$6.50 per ton during the year. In January, Rods were quoted at \$30 @ \$30.50 at maker's mill, and in December the market was dull at \$24 at mill. Trade in Merchant Steel during the year was disappointing, especially during the last six months. Large buyers held back specifications and mills found it impossible to get enough work to keep them busy. Prices also declined during the year, and at this time are much lower than ever before in the history of the trade. In Skelp Iron and Steel business showed a large falling off in demand, owing to the dullness ruling nearly the entire year among the Pipe and Tube mills. Prices of Grooved Iron Skelp were fully \$3 per ton lower in December than in January, and Sheared Iron Skelp showed about the same decline. In Steel Skelp prices also declined materially, but the consumption of Steel Skelp is steadily increasing, and it bids fair to supersede Iron Skelp largely, owing principally to its cheapness. In Wire Nails there was a fair amount of business during the year, but the decline in Steel was reflected in the price of Wire Nails. In January Wire Nails were ruling at \$1.40 base, at mill, while in the last week in December \$1.10 @ \$1.15 at mill represented the market, showing a decline in price during the year of from 25¢ to 30¢ per keg. The same decline in Cut Nails also occurred, the price in January being \$1.42½ @ \$1.45 on a 30¢ card, while in December the market was ruling at 95¢ at mill for Wire Nail averages. In Barb Wire the consumption during 1893 was very heavy, but prices ruled low during the entire year. In January Four-Point Galvanized Wire was held at \$2.40 at mill, and in December the ruling price was \$2.15, showing a decline of fully \$5 per ton. The same drop in price took place in Painted Wire. In Connellsville Coke there was a drop of about 70¢ per ton during the year. In January the circular price of Furnace Coke was given as \$1.90 in tons of 2000 lb, f.o.b. cars in Connellsville region. However, this price was not observed, the actual price being \$1.60 @ \$1.70 per ton. In July the price had declined to \$1.45 @ \$1.50 per ton, and from that month there was a gradual decline in price, owing to so many blast furnaces being idle, causing very keen competition among the large and small operators for what trade there was going. In October the price touched \$1.20 per ton, but the decline did not stop here, as early in November Coke was freely offered at \$1.10 at oven. At this time less than half the ovens in the Connellsville region were active, and the

Coke trade could hardly have been in worse condition. About this time a number of idle furnaces in the Pittsburgh and Valley districts resumed blast, and the demand improved somewhat, resulting in a gradual blowing in of ovens in the Connellsville region. At this writing there are about 9000 ovens active and 8600 idle, the weekly production being close to 90,000 tons. During December the price of Furnace Coke declined still further, and it is now ruling at \$1.05 per ton at oven. Even this price has been slightly shaded for desirable contracts for the first half of this year. The trade in Foundry Coke was considerably better during the first half of 1893 than during the last half. Prices of Foundry Coke also declined materially during the year. In March the established price of Foundry Coke was \$2.15 to dealers and \$2.30 to consumers. However, this price was not maintained, but was shaded considerably. Under date of December 1 circulars were issued by a prominent Coke maker offering Foundry Coke to dealers at \$1.30 and to consumers at \$1.45 per ton. These prices are also shaded, however, and prices depend altogether upon the nature of the order and the terms of settlement.

St. Louis.

(By Telegraph.)

Office of *The Iron Age*,
Bank of Commerce Building,
St. Louis, January 3, 1894.

The year 1893 closed in a dull and listless manner, so far as the Iron trade was concerned. Sales of Pig Iron during the closing week of the year were lighter than perhaps any week during the entire year. The year 1894 opens up with prices at their lowest level, and it is to be hoped that before many weeks are past the low prices at present prevailing will only be a memory. In the way of Manufactured Iron there is nothing encouraging in the situation. Prices ruling to-day are from \$5 to \$7 per ton lower than they were one year since, and the present indications are they will still go a little lower. Barb Wire and Wire Nails have also reached the lowest mark in their history, the former selling at \$1.90 for Painted Wire and the latter \$1.30 per keg, as against \$2.25 and \$1.65 one year since. Pig Lead and Spelter have had an interesting year, and are now selling about as low as they ever did. Lead is quoted at 3¢, while one year since it sold at 3.60¢, and Spelter is now quoted at 3.30¢, as against 4.05¢ @ 4.10¢ at the opening of 1893.

Metal Market.

Pig Tin.—Business has been extremely quiet and the market remains bare of new feature aside from the change in the statistical position. In the latter connection the most remarkable fact is that the official estimate of consumption was reduced to 910 tons for the month of November, against previous estimates of 1600 tons monthly. The stock in the United States, excluding Pacific ports, is estimated at 1980 tons, and the amount afloat is 1005 tons. Prices have not fluctuated as much as the statistics, but the market shows rather poor form and it is no difficult matter to purchase ordinary jobbing parcels at about 20.60¢. Bids of over 20.50¢ for round lots have been extremely few and far between. Bou-

stead & Co., Singapore, cabled Straits shipments during the last half of December as having been 2075 tons, making a total for the month of 3900 tons, against 2980 tons in December last year. The movement of Tin during the past month and the statistical position are given as follows in the Metal Exchange circular:

Shipments:	De- cem- ber. Tons.	No- vem- ber. Tons.
Straits to Great Britain.....	2,900	1,950
Straits to Continent Europe.....	925	750
Straits to United States.....	300	200
Total from Straits.....	4,125	2,900
Australia to Great Britain..	450	480
Australia to United States..	Nil	50
Total from Australia ..	450	530
London to United States..	180	240
Holland to United States..	Nil	Nil
Total from Europe.....	190	240
Consumption, London deliv- eries.....	1,480	1,670
Consumption, Holland (Banca & Billiton).....	570	780
Consumption, Holland Straits.....	115	300
Consumption, United States, excl. Pacific Ports.....	910	1,600
Total.....	3,075	4,350
Stock, London.....	5,210	4,750
Stock, Holland (Banca & Bil- lition).....	990	1,290
Stock, Holland Straits.....	565	425
Stock, United States, excl. Pacific Ports.....	1,980	2,470
Total stock at the close of month.....	8,745	8,925
Afloat, London.....	4,490	3,283
Afloat, Holland (Banca & Bil- lition).....	1,660	1,040
Afloat, Holland Straits.....	490	520
Afloat, United States, excl. Pacific Ports.....	1,05	745
Total afloat at the close of month.....	7,645	5,588
Total visible supply.....	Janu- ary 1, 1894.	Novem- ber 1, 1893.
	16,390	14,523

Copper.—Business has been of strictly routine type and moderate all told. At least, such is the gist of reports made by sales agents and brokers. Such as they were, the dealings were chiefly at last week's prices, say 10½¢ @ 10¾¢ for Lake Superior Ingot, 9¾¢ @ 10¢ for Electrolytic and 9¾¢ @ 9½¢ for casting stock, according to brand and quantity.

Pig Lead.—Dealings have been on a very moderate scale and the demand fails as yet to show any signs of improvement. No particular pressure to sell is observed, but there seems to be quite enough Lead to go around, and prices remain soft at 3.25¢ @ 3.30¢ for ordinary Western brands.

Spelter.—Sales here have been on a very moderate scale. The demand continues slow as well. Meanwhile the pressure to sell increases more or less and serves to keep prices on a very low level. Ordinary Western brands have been sold at as low as 3.55¢ @ 3.60¢. Fancy brands bring about the usual premium.

Antimony.—There is a fair jobbing movement at about 9½¢ @ 9¼¢ for Hallitt's and 10¢ @ 10¼¢ for Cookson's.

Tin Plate.—The demand for both prompt and future deliveries has continued rather disappointing, leaving the market in poor shape. Stocks here are fairly large with a good assortment. Spot quotations are as follows: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., \$5.30; Bessemer full weight, \$5.30; light weights, \$4.85 @ \$4.90 for 100 lb, \$4.80 for 95 lb, \$4.62½ for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.65; IX basis, \$6.75 @ \$6.80. Charcoals—Melyn grade, IC,

\$6.35; Crosses, \$7.87½; Allaway grade, IC, \$5.60; Crosses, \$6.75; Grange grade, IC, \$5.75; Crosses, \$6.85. Charcoal Ternes—Worcester, 14 x 20, scarce; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.35 @ \$7.37½; do., 20 x 28, \$14.75; Dean grade, 14 x 20, \$5.35; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.15; do., 20 x 28, \$10.10; Alyn, 14 x 20, \$5.35; do., 20 x 28, \$10.50; Wasters—S. T. P. grade, 14 x 20, \$4.75; do., 20 x 28, \$9; Abercarne grade, 14 x 20, \$4.60; do., 20 x 28, \$8.87½

Financial.

The year of Our Lord 1893 has dropped into the past with a sufficiently heavy load of financial and commercial disaster to stamp it in future history as one of almost unequaled gloom, and the last week displayed no lifting of the strain. It passed out with a pre-eminent record of dullness and depression in business circles, with one of the largest returns of failures in the year, with the prices of staples at the lowest notch, with a further shrinkage in values of railroad and industrial securities approximating them to the phenomenal prices of August, with a growing army of unemployed labor whose ranks are swollen to unprecedented proportions, and with the operations of many industries reduced to as much as one-half their normal volume, and those of most restricted to a very material extent.

Beyond these unfavorable symptoms, a constant falling off in Treasury receipts is announced which presents a very serious condition. The shrinkage for the last six months of 1893, according to official reports, reached a total of over \$34,000,000, mainly composed of heavy decreases in customs receipts and to a lesser extent in internal revenue, while expenditures for the same period show a comparatively small decrease of \$5,800,000. So far as can be foreseen there is no ground for assuming that there will be any material change in these proportions in the near future, and the total shrinkage in Treasury receipts for the present fiscal year is estimated as likely to reach between \$50,000,000 and \$60,000,000. To relieve this incubus will be the weighty task of the Administration during the present year. At the close of 1893 the Treasury cash balance had fallen to \$89,000,000, of which \$81,644,000 was gold, with the certainty of a further decline in the reserve during the coming months unless the Government shall succeed in raising money by the issue of bonds or by other means. The following table exhibits the Treasury gold fund's gradual shrinkage during the year:

	Gold held.	Gold certificates held.	Net gold held.
January 1.....	\$238,359,811	\$24,254,750	\$121,266,662
January 31.....	228,827,532	15,729,770	108,181,713
February 28.....	217,672,947	7,782,260	103,284,218
March 31.....	218,378,232	5,135,430	106,892,223
April 29.....	202,283,359	8,888,310	97,011,330
May 31.....	190,518,609	3,324,670	95,048,640
June 30.....	188,455,432	1,071,170	95,485,413
July 31.....	186,813,962	93,710	99,202,933
August 31.....	176,423,172	565,370	96,009,123
September 30.....	173,203,771	129,220	93,582,172
October 31.....	163,274,171	115,860	84,384,862
November 29.....	161,122,128	149,080	82,959,049
December 30.....	159,104,355	809,180	81,644,166

In a comprehensive summary of the business features of the past year *Dun's Review* presents some very striking statistics, showing the disastrous effects on general business of the financial re-

port of 1893. The commercial and banking failures far surpassed those of any previous year, both in number and magnitude. Those included in the former class reached a total of 14,212, with liabilities amounting to \$331,423,000, which may be tabulated under the leading interests as follows, the last three ciphers being omitted for convenience:

	Manufacturing.		Trading.		Others.	
New England.....	482	\$12,065	1,290	\$14,820	24	\$2,766
Middle.....	1,149	100,700	2,035	25,757	80	13,136
Southeastern.....	358	10,106	2,096	20,668	39	4,934
Southwestern.....	90	1,712	1,047	10,377	12	2,515
Central.....	664	28,138	1,387	19,681	55	6,451
West.....	219	7,075	1,656	19,479	51	15,429
Pacific.....	264	4,908	1,172	9,269	41	1,428
Aggregate.....	3,226	\$164,707	10,683	\$120,054	302	\$36,662

The banking failures in 1893 were 642 in number, with liabilities of \$211,000,000, and reported assets of \$234,350,000. The following table shows their territorial distribution:

States.	No.	Assets.	Liabilities.
New England.....	16	\$9,832,895	\$12,546,000
Middle States.....	35	41,460,089	43,478,618
Southeastern.....	82	29,111,842	22,119,514
Southwestern.....	61	26,254,154	29,703,776
Central.....	149	38,766,378	37,457,963
Western.....	218	57,264,427	39,554,298
Pacific.....	81	31,634,752	26,198,639
Total.....	642	\$234,345,537	\$210,998,808

The railroads suffered in proportion almost more seriously than any other business interest. No less than 75 roads, many of them of the first importance, worth about one-seventh of the total mileage of the United States, were placed in the hands of receivers. Their total indebtedness reached over \$1,200,000,000, the amount of stocks outstanding being \$674,412,487.

The uniform shrinkage in prices of staples has been most marked. Cotton, which on January 1, 1893, was at 9½¢, ruled on January 1, 1894, at 7½¢ @ 7¢ lb. Wool between the same dates shrunk from 28¢ @ 29¢ to 23¢ @ 23½¢ lb. Wheat fell from 79½¢ to 65½¢ @ bushel; and corn from 49½¢ to 42½¢, the latter prices being those quoted on the first business day of this year. As the prices of agricultural products virtually determine the prices of all other products, it is small wonder that those for all manufactured articles were the lowest on record. Yet with all these and other unfavorable effects of the financial panic of 1893, the wonder is that the business and commercial community of the United States in general passed through the fierce trials of the past year without yet more extensive disaster. The repeal of the Silver Purchase bill at a critical moment aided, undoubtedly, in staving off much misfortune, and to the wise and patriotic conduct of the New York banks is due the im-

legislation has turned up and is now the bugbear that is frightening away confidence, so that until this whole question, including the revenue changes proposed to make up the balance of probable loss to be incurred by the adoption of the Wilson bill, is definitely settled men will still hold aloof from new enterprises and strictly confine their efforts to the provision of current needs.

Any long delay in a settlement of the vexed question of tariff and internal revenue changes will mean a corresponding continuance of the past depression in business, which may otherwise become intensified rather than relieved by the course of time.

The influx of currency from the interior again shows a large volume, the net receipts of the New York banks during the past week having been \$5,300,000. The weekly statement of the Associated Banks, published on Saturday, showed an average gain in cash of \$4,775,000, and a moderate expansion of \$1,320,000 in loans. The result of all the week's changes was another gain in the surplus reserves amounting to \$2,877,000, and bringing the total amount now held by the banks in excess of legal requirements up to nearly \$81,000,000. The difficulty of utilizing this accumulation of money profitably still obtains. As a consequence the loan market is excessively easy. The rates of interest are all more or less nominal. Borrowers on call are supplied with ample funds at 1% @ 1½%, the latter rate being less common than the former. Time loans vary from 2½% to 3½%, according to extent and collateral. The demand for this accommodation continues small and the supply superabundant. Commercial paper of a good grade is in poor supply, but readily discounted at 3½% @ 4½%.

The close of 1893 was contemplated with great relief in Wall street, where its marks have been cruelly felt. The last few days were naturally dull on the Stock Exchange, owing to preparations for the adjustment of annual balances and the occurrence of the holidays. Dealings were confined to a "professional" nature and to but a few stocks. The prominent features of Friday's and Saturday's trading were a sharp advance in Louisville on buying orders from London and a further drop in New England. The week closed dull and heavy, but with hopes of brighter things with the opening of business in the new year. These hopes were not, however, doomed to fulfillment. The bears had full control of Tuesday's market, which showed a disposition to go to pieces under their attacks. Sugar Refineries was the principal object of attack, and yielded to the extent of five points, carrying down the whole list. The market was, in fact, quite demoralized, and offered no resistance, values tumbling so as to recall panic times. The volume of dealings was, however, small, and the operations of the day void of any really important significance. The following list shows the outside fluctuations of some of the more active

stocks during the past week, with the closing prices on January 3:

	High- est.	Low- est.	Closing, Jan. 3.
Am. Sugar Ref.	84	76½	81
Atchison, T. & S. Fe.	13½	9½	11½
Balt. & Ohio.	67½	67	..
Chicago Gas.	62½	59½	61
Chic., B. & Q.	76½	73½	75½
Chic., Mil. & St. Paul.	58½	55	55½
Chic., Rock Isl. & Pac.	63½	61½	63½
Del. & Hudson.	180	128	132
Del., Lack & Western.	163	161½	162½
Gen. Electric.	34½	31½	32½
Lake Shore.	124½	119½	120½
Louisville & Nashville.	43½	39½	44½
Manhattan.	123½	120½	123½
Missouri Pacific.	21½	19½	20½
National Lead, Common.	23½	22	23½
New Jersey Central.	113	112	112
New York Central.	99	96½	96½
N. Y., L. E. & Western.	14½	13½	14
N. Y. & New England.	13½	7½	9½
Northern Pacific, Pfd.	19	18½	18½
Philadelphia & Reading.	17½	17	18½
Richmond & West Pt., Term.	2½	2	2½
St. Paul & Omaha.	35	32½	33½
Union Pacific.	18½	16½	18½
Western Union.	83½	81½	83½

A comparison of the business done on the New York Stock Exchange for the year 1893 with that of 1892, shows as follows:

Stocks, shares.	80,013,902	Dec.	5,613,084
Bank stocks.	9,458	Dec.	2,698
Mining stocks.	252,172	Dec.	63,294
Railroad bonds.	\$351,415,250	Dec.	\$131,735,250
State bonds.	3,766,400	Dec.	1,313,900
Government bonds.	1,914,200	Inc.	292,000

Railway and miscellaneous bonds have been dull but firmer, some advances having occurred in a few issues owing to purchases at the end of last week. Government bonds have been neglected, but closed steady at a decline from last week's prices. Closing quotations were as follows:

	Bid.	Asked.
2s, 1891, registered.	95
4s, registered.	112	113
4s, coupon.	112	113

Sterling exchange opened weaker on Tuesday, owing to the accumulation of commercial bills over the holidays and declining rates of discount in London. The demand from remitters was not very active. Actual business was done at 4.83½ @ 4.83½ for sixty days, 4.85½ for demand, 4.86½ for cables and 4.82½ @ 4.82½ for commercial.

Domestic exchange on New York is quoted as follows: New Orleans, commercial, 125 discount, bank par; Charleston, buying ½ discount, selling ½ premium; San Francisco, sight 12½, telegraph 17½ premium; Savannah, buying ½ discount, selling par @ ½ premium; Chicago, 80 premium.

Bar silver has experienced a considerable drop in price, being quoted in London, on Wednesday, at 31½d. and in New York at 67½¢ per ounce. Exports shipments of the metal have been moderate during the week. The specie and bullion movement of gold and silver during 1893 are shown in the following exhibit:

Imports of gold.	\$33,430,997	Inc.	\$54,926,484
Imports of silver.	2,417,129	Dec.	420,990
Exports of gold.	72,915,254	Inc.	2,305,780
Exports of silver.	33,464,221	Inc.	10,846,593
Net exports, gold.	9,484,257	Dec.	53,193,943
Net exports, silver.	31,047,092	Inc.	10,810,944

The expectation of an extended resumption of shipments of gold to Europe which prevailed a short time ago have not been realized, and there are at present no indications of such an export movement.

† The Bishop of Urgel, in the European republic of Andorra, recently prohibited and anathematized the installation of telephonic apparatus and other supernatural and diabolical electrical necromancy.

New York.

Office of *The Iron Age*, 96-102 Reade street, }
New York, January 3, 1894. }

Pig Iron.—The only news of interest in this market is the report that foreign interests have taken further quantities of Southern warrants, the amount involved being about 18,000 tons, which carries the total thus far contracted for by foreign parties to about 35,000 tons. It is understood that the prices were \$7.50 in yard for No. 3 Foundry, and \$8 for No. 2. We quote: Northern brands, \$13.25 @ \$14.25 for No. 1; \$12.75 @ \$13.50 for No. 2; \$12 @ \$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$13 @ \$13.50 for No. 1; \$12 @ \$13 for No. 2; \$11.50 @ \$12 for No. 3; \$11.50 @ \$12.25 for No. 2 Soft, and \$12.25 @ \$12.50 for No. 1 Soft. Gray Forge is \$11.25 @ \$11.75.

Spiegeleisen and Ferromanganese.—There is no chance for any business in Spiegeleisen. At present prices for domestic Ferromanganese the foreign article cannot even hold its own in tidewater markets, domestic being offered at \$55, delivered. We quote: Spiegeleisen, 10 % @ 12 %, \$21.50 @ \$22, and 20 %, \$25.50 @ \$26, on cars, Jersey City.

Billets and Rods.—This market is exceedingly dull. We quote nominally: Domestic Billets, \$19.25 @ \$22, and foreign Billets, \$28 @ \$28.50, tidewater; domestic Wire Rods, \$26 75 @ \$28, and foreign Rods, \$39 @ \$39.50, tidewater.

Steel Rails.—Eastern mills report no business. It is estimated by good authority that the whole tonnage as yet unplaced for this year's delivery in the Eastern mills will not aggregate more than 50,000 tons. The first sign that work is coming out for the Western mills is the appearance of the order for the Illinois Central for 19,000 tons, which, of course, goes to the Chicago mill. We continue to quote \$24.80 at tidewater.

Track Material.—We quote as follows for small lots: Spikes, 1.70¢ @ 1.90¢; Fish Plates, 1.25¢ @ 1.40¢; Track Bolts, Square Nuts, 2.10¢ @ 2.40¢, and Hexagon Nuts, 2.30¢ @ 2.50¢, delivered. Concessions would be made for round lots.

Manufactured Iron and Steel.—There has been no change in the situation. Very little new work is coming out, although building schemes are under way which will come out later in the season. We quote nominally: Beams up to 15-inch, 1.65¢ @ 1.80¢; 20-inch, 1.80¢ @ 2¢; 24-inch, 2¢ @ 2.25¢, for round lots; Angles, 1.55¢ @ 1.75¢; Universal Mill Plates, 1.50¢ @ 1.65¢; Tees, 1.75¢ @ 2¢; Channels, 1.65¢ @ 2¢, on dock. Steel Plates are 1.45¢ @ 1.60¢ for Tank; 1.60¢ @ 1.90¢ for Shell; 1.90¢ @ 2.15¢ for Flange, and 2.25¢ @ 2.80¢ for Fire Box, on dock; Refined Bars are 1.45¢ @ 1.9¢, on dock, and Common 1.35¢ @ 1.50¢; Soft Steel Bars are 1.45¢ @ 1.70¢; Scrap Axles are quotable at 1.65¢ @ 2¢, delivered; Steel Axles, 1.65¢ @ 1.90¢, and Links and Pins, 1.65¢ @ 1.80¢; Steel Hoops, 1.70¢ @ 1.90¢, delivered; Cotton Ties, 70¢ @ 72½¢ per 45-lb bundle, at mill; Machinery Steel, 1.45¢ @ 1.50¢; Toe Calk, 1.90¢ @ 2¢ and Sleigh Shoe, 1.65¢ @ 1.75¢, delivered.

Charles S. Clark, Boston sales agent of the Pennsylvania Steel Company, announces that he has removed from 70 Kilby street, Boston, to 8 Oliver street.

British Iron and Metal Markets.

[Special Cable Dispatch to *The Iron Age*.]

LONDON, WEDNESDAY, January 3, 1894.

The usual holiday inaction has prevailed in the Metal market, as business has been slack all along the line. Under pressure of some forced sales Tin prices dropped to £73. 5/ for prompt delivery, but the decline has led to little buying outside of the covering of "short" sales. At the close the market was quiet, with £73. 10/ quoted for prompt and £74. 10/ for futures.

Copper has been flat and price has dropped to £42. 15/ for Merchant Bar prompts. Both consumers and speculators are very indifferent buyers. The statistics for December show a decrease of 830 tons in spot stocks, but the visible supply for Europe has increased 478 tons during the past fortnight. Chili Charters for the last half of the month were 1200 tons. At the close the market was dull, with £42. 12/6 quoted for Merchant Bar prompts, £43. 2/6 for futures and £46. 5/ @ £46. 10/ for Best Selected English.

The Tin Plate market is rather weaker. Inquiries have been rather more numerous, but buyers' views on prices were too low for the consummation of any considerable business, and outside of purchases of Wasters for Eastern account there has been hardly any business. Bessemer Cokes were sold in Swansea at as low as 10/4½. Ternes went at 19/6 for doubles. Standard Charcoals went at 11/6. Stocks at shipping points are estimated at 252,000 boxes. The market for Black Plates is very dull. Liverpool quotations were as follows:

IC Charcoal, Alloway grade.	12/3 @ 12/9
IC Bessemer Steel, Coke finish.	11/3 @ 11/6
IC Siemens.	11/6 @ 11/9
IC Coke, B. V. grade, 14 x 20.	11/3 @ 11/6
Charcoal Terne, Dean grade.	10/9 @ 11/

The movement in Pig Lead has been slow and prices remain almost stationary at £9. 10/ for Soft Spanish.

Spelter has remained quiet, and the market is soft, with £16. 10/ @ £16. 12/6 quoted for ordinary Silesian.

There has been little change in the market for Iron or Steel, business being on a moderate scale, while values are rather soft in nearly all departments. Sellers are now offering Ferromanganese at £10, a decline of 10/ from late quotations. Otherwise the changes have been very slight. Last transactions in warrants were at 43/6 for Scotch, 35/6 for Cleveland, and 45/6 for Hematite.

Trade Publications.

WE HAVE RECEIVED from the Phoenix Iron Works Company of Meadville, Pa., a catalogue illustrating and describing the various types of engines built by them, and also their horizontal tubular boilers and the Manning vertical boiler. The latter is a durable and economical steamer and being internally fired, can be built heavy enough to stand almost any given pressure. It has

the additional merit of occupying very little floor space. This company are now making the greatest effort on their tandem compound and four-cylinder triple expansion engines. In these engines the cylinders are entirely independent and free to expand, and at the same time it is not necessary to disturb either cylinder in order to take out the piston. In the tandem compound the valves of both cylinders are controlled automatically by the governor, which is a radical departure from most engines of this class, as nearly all other builders of this type use a fixed cut off on the low pressure cylinder. The advantage claimed is that no matter how much the load may vary there is always an equal distribution of the loads between the two cylinders, maintaining a regular receiver pressure, consequently do not have the great range of cylinder temperatures, and, of course, do not have the same amount of cylinder condensation. In the four-cylinder triple expansion engine the governor controls the valves of all four cylinders. At the World's Fair, there were one 500 horse-power triple expansion engine, one 250 horse-power tandem compound and one 250 single cylinder engine of these builders.

OBITUARY.

WILLIAM J. LLOYD.

William J. Lloyd, formerly president of the William J. Lloyd Mfg. Company, Philadelphia, died on the 29th ult., having shot himself, it is thought, while his mind was temporarily unbalanced, owing to business reverses and shattered health. About 18 months ago Mr. Lloyd was seized with a severe attack of the grip, from which he never fully recovered, and occasionally since he suffered from violent pains in the head. Mr. Lloyd had not been engaged in any business for nearly a year, although he was preparing to embark in a New York enterprise within a short time. The most prosperous part of his business career was from 1867 to 1869, when he was the senior member of the Lloyd & Supplee Hardware Company, now the Supplee Hardware Company. In July, 1889, he withdrew from this concern, and in the fall of that year he went into the hardware manufacturing business, but the venture was unsuccessful and the works were sold out last March.

COL. J. B. SELHEIMER.

John Beale Selheimer, a prominent hardware merchant, Lewistown, Pa., and a director in the Mann Edge Tool Company of the same place, died on the 16th ult. Colonel Selheimer was born in Milford township, Juniata county, Pa., on August 18, 1826. At the age of 16 he came to Lewistown and learned the trade of a tinsmith, which he subsequently followed also at Philadelphia. In 1848 he entered the hardware business at Lewistown, which business he conducted with marked success until the time of his death. Colonel Selheimer served in the rebellion. He was subsequently elected lieutenant-colonel of the Twenty-fifth Regiment, Pennsylvania volunteers. In 1857 Colonel Selheimer was elected county treasurer, serving two years. In 1884 he was elected to the State Senate from the Lewistown district, and served his constituents with honor and ability. At the end of his term he declined a re-election. Colonel Selheimer built up an extensive business, and was active in promoting public enterprises.

The attention of ingenious men and women is directed to the fact that the Franklin Institute, Philadelphia, Pa., are interested in the grant of certain medals for discoveries and inventions.

The Elliot Cresson Gold Medal, founded in 1848, may be granted for some discovery in the arts and sciences, or for the invention or improvement of some useful machine, or for some new process or combination of materials in manufactures, or for ingenuity, skill or perfection in workmanship. The John Scott Legacy Premium and Medal, which is \$20 and a bronze medal, is awarded by the city of Philadelphia on the recommendation of the Franklin Institute for useful invention. The Edward Longstreth Silver Medal is awarded for useful invention, important discovery and meritorious work in or contributions to the sciences or the industrial arts. Full directions as to the manner and form in which applications for an investigation of inventions and discoveries will be sent by addressing William H. Wahl, secretary of the Franklin Institute, Philadelphia, Pa.

Warships of Foreign Powers.

From a return contained in a Parliamentary paper it is learned that the warships belonging to the five naval powers mentioned, in commission, in reserve, and building in the year 1893, are in numbers as follows:

Great Britain.—Has in commission: Twenty-four battleships, four coast defense ships—armored—63 cruisers—armored and unarmored—and 78 other ships, not torpedo boats. In reserve: Ten battleships, 16 coast defense ships—armored—49 cruisers—armored and unarmored—and 50 other ships, not torpedo boats. Building and completing for sea: Nine battleships, 19 cruisers—armored and unarmored—and 23 other ships, not torpedo boats.

France.—Has in commission: 19 battleships, 5 coast defense ships—armored—23 cruisers—armored and unarmored—and 50 other ships, not torpedo boats. In reserve: 5 battleships, 3 coast defense ships—armored—20 cruisers—armored and unarmored—and 62 other ships, not torpedo boats. Building and completing for sea: 8 battleships, 2 coast defense ships—armored—19 cruisers—armored and unarmored—and 5 other ships, not torpedo boats.

Russia.—Has in commission: Five battleships, 9 cruisers—armored and unarmored—34 other ships, not torpedo boats. In reserve: Two battleships, 9 coast defense ships, 6 cruisers—armored and unarmored—37 other ships, not torpedo boats. Building and completing for sea: Eight battleships, 4 coast defense ships, 2 cruisers—armored and unarmored—4 other ships, not torpedo boats.

Germany.—Has in commission: 11 battleships, 14 cruisers—armored and unarmored—19 other ships, not torpedo boats. In reserve: 3 battleships, 6 coast defense ships—armored—17 cruisers—armored and unarmored—5 other ships, not torpedo boats. Building and completing for sea: 7 battleships, 3 cruisers—armored and unarmored—and 1 ship, not a torpedo boat.

Italy.—Has in commission: Four battleships, 8 cruisers—armored and unarmored—16 other ships, not torpedo boats. In reserve: Nine battleships, 5 coast defense ships—armored—5 cruisers—armored and unarmored—26 other ships, not torpedo boats. Building and completing for sea: Four battleships, 13 cruisers—armored and unarmored—3 other ships, not torpedo boats.

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HARDWARE.

Condition of Trade.

THE PAST WEEK, broken as it was by a holiday and devoted principally to the closing up of the business of 1893, was characterized by exceptional quietness in trade, and it is as yet too early to look for any important change from the conditions under which the old year ended. The results of stock taking are not yet sufficiently ascertained to indicate precisely the results of the business of the year, but it is assumed on general principles that profits will in most cases be considerably less than usual. It is presumed that the stocks on hand with the trade are considerably smaller than usual, and notwithstanding the relatively light business of the past few months manufacturers also have on hand somewhat less than the usual quantity of goods. The market is thus in condition to feel quickly the effect of an active demand when it sets in. Prices are in an unsatisfactory condition. Leading lines of staple goods are cheaper than ever before in the history of the trade, but in the line of general and Shelf Hardware prices which held six months or a year ago are still quite generally adhered to. There are indications, however, of a tendency toward lower prices in some goods, and it is not unlikely that a careful review of costs, diminished in some cases by reduction in wages, will enable manufacturers to name lower prices on some lines. The condition of the market in some of the leading trade centers is reflected in the communications given below from our special correspondents, some of whose advices, owing to special circumstances, are deferred until our next issue.

Chicago.

(By Telegraph.)

The Hardware trade has not yet made a start for the year. Salesmen are generally at home and stock taking has not concluded. Jobbers are not expecting any business of consequence for the first two weeks of the month.

St. Louis.

(By Telegraph.)

The jobbers of Hardware have about concluded their annual stock taking, and most of them are more than satisfied with the year just closed, when it is taken into consideration that many

concerns throughout the country who started out so encouragingly have dropped by the wayside. The city of St. Louis was singularly free from business embarrassments and the jobbers have not very many bad debts to carry over. Careful conservative judgment has been displayed during the entire year, and they now face 1894 with the hope that it will prove a banner year. Traveling men will shortly leave for their accustomed territory, and business in this department is expected to pick up quite lively during the next month.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—The new year opens with but little that is special to chronicle. The books of the old year are closed, and they doubtless generally furnish food for deeper reflection than usual. It is seldom that many commercial houses are compelled to face as unsatisfactory balance sheets as now, but still the situation might easily be much worse with the commercial world.

When we take a survey of the past year and realize the extent of the financial troubles through which we have been obliged to make our way to the desired haven, and also note the remarkable fact that comparatively so few of the commercial houses of acknowledged high standing have gone down, we cannot but experience a feeling of surprise and thankfulness that the great commercial interests of the country have fared as well.

Many useful lessons have also been learned by all thoughtful men who have been in business in this historical year—lessons of expansion of business, excessive or otherwise, ill advised credits and speculative enterprises—lessons, too, for both the wholesale and the retail dealer.

The new year will doubtless show a very moderate trade in the early months, but we hope for satisfactory improvement as spring approaches. It is certain that the commercial interests of the country are in shape to justify this reasonable expectation, and as one of the most important means of securing this boon, let every business man look on the cheerful side of affairs—for there is a bright side to it—and not only see this bright side, but show that he sees it, and it will have a wonderful effect in restoring confidence and bringing back "good times." These are not the days for croakers and pessimists.

The country is not going to the dogs, and in due time we shall see prosperity on all hands again, and we shall see it much sooner if only we show our faith in its early coming by our works and not by wearing long faces.

New Orleans.

A. BALDWIN & Co.—Business has become somewhat more quiet in this section of the country. Most of the buyers are evidently waiting for the new year before making their purchases. The total amount of business

during the past 60 days has fallen off somewhat from the same period last year. We, however, look for a decided improvement during the next 60 days. People do not seem to be over anxious to buy stock, even with the extremely low prices on leading staples; but all seem to be holding back, waiting for further developments.

Portland, Ore.

CORBETT, FAILING & ROBERTSON.—To sum up for 1893 is easier than to forecast 1894. While the past year has been a great disappointment in many ways we must admit that it might have been much worse. During the greater portion of the year money has been hard to get, and is so still, yet the effort has been honest, and the creditor has shown a desire "to bear and forbear." The credit system, as conducted in the past, we hope has received its death blow. We have all known, in Oregon and Washington, that we had the best country on the face of the earth, and a climate, for comfort and health combined, not to be surpassed. Banking on our knowledge of what we knew we had, we have expected the rest of the world to realize it too, and to want to cast their fortunes with us. We have been a little too previous, and have attempted a development on our own resources and credit that has been too much for us, and the consequence was we came near being stranded. Had Eastern Oregon and Washington been able to harvest the immense crop that was raised but damaged and destroyed by unprecedentedly early and continuous rains, the result of our year's work would have shown to a better advantage. As it is, this section will require at least two average crops with fair average prices before they are again in condition to ask and obtain the credit they have been entitled to in the past. Many have advocated the starting of larger manufacturing enterprises, while not considering our limited trade. We are at present well satisfied that we do not have them, as it would only tend to have a larger number of unemployed on our hands.

The contemplated tariff changes can only work to the advantage of this coast as a whole.

We are not expecting any great results from the coming year's business, so, of course, cannot be greatly disappointed if the new year shows no improvement over the old.

Cleveland.

THE W. BINGHAM COMPANY.—The closing weeks of December are, with the Hardware jobbing trade, usually the duller of the year, and this year it was especially so. Merchants are getting ready for annual inventories many of them with strong forebodings of a very poor showing. The thing to do now is to turn toward 1894 with hopes for better times. It is too much to expect the first six months to equal the corresponding ones of 1893, but the entire year should surely average far and away ahead. The extremely low

prices on Wire and Nails have stimulated trade somewhat in these commodities—particularly the latter—which are selling very freely for immediate deliveries. City retailers report a fair holiday trade, and some who make a specialty of holiday goods report the sales for the last three days before Christmas as far ahead of those of previous years.

Baltimore.

CARLIN & FULTON.—With the advent of the New Year it is generally customary with those of a philosophic turn of mind to review the past 12 months, regret its disappointments and failures, forget most of its pleasures and successes, and then with a kind of self satisfying feeling of rectitude start again with a lot of new resolutions, instead of writing at the end of the chapter just ended, "continued in our next."

As in the wider circle of our general lives, so in the more narrow one of our business life, we become retrospective, and looking back to the year just ended we have a keen and abiding recollection of the numerous disasters and the ruin to many in all lines of trade which marked the year. We cannot forget the tremendous shock given to all industrial and mercantile development and the greatest depreciation ever known in all values, whether those of the agriculturist's products or the mechanic's labor, the bondholder's investments or the widow's savings.

At the same time we must remember that with the bad has been some good. There has been a most decided check to the wild and reckless speculation which was flooding the country with bonds and stocks issued for imaginary and false valuations of real estate by companies whose actual assets were corn fields converted on paper into city lots of fabulous worth; and through the temptation of large dividends the confiding investor was being swindled to a degree unheard of before.

We have also to be thankful for the restoration of our national currency to its place in the world, from which it was rapidly falling to a point where ruin would inevitably ensue; and the importance of this act alone, if properly appreciated, should partly reconcile us to the present depression, which can be but temporary.

That the moral sense of the people has not diminished is shown by their rebuke of municipal rascality and judicial dishonor.

We hear of thousands in the great cities unemployed, and yet strange to say in the rural sections, where starvation never occurs, it seems almost impossible to secure labor. Though moneyed institutions and immense corporations of different kinds have succumbed during the past year to the tremendous strain upon them, the average merchant has done nobly in sustaining his own credit, in carrying his own customers, in marketing his goods without a panic or sacrifice, in adjusting his expenses to new conditions without causing suffering among those employed, and by an enforced economy and a reduced indebtedness with a diminished stock, he is now ready when the tide turns to give an impetus to trade and make it as it has been before.

We regret to read in the daily papers a number of instances where manufacturers announce to their employees that in consequence of the possible passage of the Wilson bill wages will now be reduced. We are not able to

say what the necessities of a manufacturer are at the present time, but it seems to us that inasmuch as the referred to bill has not even been passed, and if passed would hardly go into operation for months to come, and no manufacturer carries at the present time much more stock than is necessary to supply his current wants, we hardly see the reason for such action at present. There is no doubt that economy in expenses is necessary, but it is time enough in our judgment to reduce the cost when the competition arises which is so much dreaded as the effect of the proposed new bill. To apply its possible effects to the wage earners at once seems to us both unnecessary and severe. We might just as well be expected to hoist our umbrellas to-day because the weather reports predict rain next week.

Notes on Prices.

Wire Nails.—In view of the moderate demand and their indisposition to accumulate stocks several of the mills are largely curtailing their production or stopping for a time. The market, on the whole, continues in the unsatisfactory condition referred to in our last report, prices being represented by the quotation of \$1.10 for carload lots at mill. It is, however, understood that this price can be slightly shaded on attractive orders, but manufacturers are indisposed to make concessions, and are desirous of reaching some understanding by which prices may be put on a more satisfactory basis. They are also unwilling to accept large orders for future delivery at current prices, and are at the present time pursuing a waiting policy and watching the market closely for developments.

Chicago, by Telegraph.—Wire Nail manufacturers report but a small inquiry during the past week, but the market has been disturbed to some extent by offers of Nails at very low prices for spot cash by manufacturers desirous to realize on accumulated stock. It is probable that some large buyers have in this way been able to secure cheap Nails, but it is extremely doubtful whether any very considerable quantity was thus disposed of. Quotations are made in a general way at \$1.15 to \$1.20 Chicago for factory lots. Small lots are selling from stock at \$1.30 to \$1.35.

Cut Nails.—The Cut Nail market is characterized by stagnation, there being but little business. The quotation of 90 cents for carload lots at mill still represents the market, but this price could doubtless be shaded on good orders with attractive terms of payment. Small lots from store in New York are quoted at \$1.20 to \$1.25.

Chicago, by Telegraph.—Cut Steel Nails are extremely quiet. Merchants are slow about making contracts for such Nails as they will require during the early months of this year, but manufacturers believe that in the course of two or three weeks there will be considerable business. Prices on ordinary specifications are maintained at \$1.20, but there is a tendency in the trade to

make concessions on high averages. Small lots from stock are selling at \$1.25.

Barb Wire.—The Barb Wire market is inactive and prices are low and somewhat uneven. Galvanized Four Point is readily obtainable at \$2.05 at mill, with 5 cents off in carload lots. Painted, at mill, is represented by the quotation of \$1.65, with 5 cents off in carloads. Some manufacturers are, however, unwilling to meet these prices.

Chicago, by Telegraph.—The local trade in Barb Wire seems to be quiet and confined to small lots, which manufacturers are supplying at \$2.30 to \$2.35 for Galvanized. The Indian Territory is the seat of severe competition for business, which is presumed to be assisted by cut freight rates to prevail for a limited time. Jobbers quote \$2.40 on small lots of Galvanized from stock.

Cordage.—The Cordage market continues to show a declining tendency, and Manila has been sold in large lots at 7 cents, f.o.b. factory or New York, subject to the usual discount of 1½ per cent. for cash. Sisal and New Zealand are held pretty firmly at 5 cents for similar lots and terms.

Specialties.—A. S. Henn & Co., New Haven, Conn., issue the following discount sheet relating to their catalogue of light Hardware specialties. Terms, cash 30 days, with a discount of 2 per cent. for cash in 10 days:

	Discount, per cent.
Can Openers.....	50 and 10
Mincing Knives.....	50 and 10
Pocket Wrench.....	50 and 10
Soldering Set.....	50 and 10
Towel Holders.....	50 and 10
Bird Cage Springs.....	10
Picture Hooks.....	10
Door Numbers.....	50 and 10
Clothes Line Pulley.....	50 and 10
Brass and Bronze Bolts.....	60 and 5
Iron Bolts.....	70 and 10
Common Cast Bolts.....	70 and 10
Letter Boxes.....	50 and 10

The following are the list prices of their Sardine Knives, Can Openers, Mincing Knives and Pocket Wrenches, which are subject, as above stated, to a discount of 50 and 10 per cent., with an additional 2 per cent. for cash in 10 days:

<i>Sardine Knives (Heavy Casting).</i>		Per gross.
No. 10, Japanned, bright steel blade, riveted.....		\$7.22
No. 015, Japanned, bright steel blade, with screw.....		7.78
No. 15, Japanned, polished head, with screw.....		9.44
No. 3, Polished and nickel plated, with screw.....		13.88
<i>Sardine Knives (Light Casting).</i>		
No. 010, Japanned, bright steel blade, riveted.....		5.56
No. 010, Japanned, bright steel blade, with screw.....		6.10
No. 010, Polished and nickel plated, with screw.....		11.68
<i>National Can Opener.</i>		
No. 5, Japanned, steel blade, cast in.....		4.98
No. 5, Japanned, polished head.....		7.75
No. 5, Polished, nickel plated.....		11.20
<i>American Can Opener.</i>		
No. 0, Bronzed, with steel blade, cast in.....		3.88
No. 0, Polished, fine nickel plated, cast in.....		8.44

Henn Can Opener.

No. 60, Imitation ebony handle, nickel plated.....	33.32
No. 65, Enameled handle, polished.....	28.80

Sprague Can Opener.

No. 1, Japanned iron handle.....	14.00
No. 2, Enameled handle.....	15.00

Perfect Can Opener.

No. 30, Extra polished and nickel plated, cherry wood handle.....	36.00
No. 25, Polished, with japanned handle.....	24.00

Fifth Avenue Can Opener.

No. 20, Full polished and nickel plated.....	24.00
No. 22, Fine polished head, japanned handle.....	20.00

Grand Can Opener.

No. 50, Full polished and nickel plated.....	30.00
No. 55, Fine polished head and japanned handle.....	24.00

New American Sharp Pointed Steel Blade.

No. 02, Bronzed, extra hardened and tempered blade.....	5.00
No. 2, Silvered, extra hardened and tempered blade.....	6.12
No. 2, Polished and fine nickel plated.....	8.90

Mincing Knives.

No. 50, Japanned handle, polished steel blade.....	18.88
No. 60, Silvered, unfinished.....	21.12
No. 70, Polished and nickel plated in full.....	36.68

Bicycle Pocket Wrench.

No. 200, Bright rolled Wrench, cast nut.....	18.88
No. 210, Fine polished, knurled steel nut.....	26.68
No. 220, Fine nickel plated, knurled steel nut.....	35.56

Malleable Iron Pocket Wrench.

No. 1, Fine tinned, brass nut.....	15.54
No. 1, Polished, nickel plated.....	22.22

Sap Spouts.—The Breck Sap Spout and Cover, manufactured by Joseph Breck & Sons, Boston, Mass., and illustrated in *The Iron Age* December 28 1893, is sold at the following net prices:

Sap Spouts, per 1000.....	\$20.00
Covers only, each.....	.06
" with indicators, each.....	.07½
Special Bits, per dozen.....	2.25

Shot.—In sympathy with the raw material, a further reduction has been made in the prices of Shot. The revised prices, which are announced by the manufacturers under date January 2, are as follows, terms net cash 30 days, or 2 per cent. discount for cash in ten days:

Drop Shot up to B, 25-pound bag.....	\$1.35
" 5-pound.....	.35
Buck Shot (including Bs, Ts and F), 25-pound bag.....	1.60
Buck Shot (including Bs, Ts and F), 5-pound bag.....	.40
Chilled Shot, 25-pound bag.....	1.60
" 5-pound.....	.40
Dust Shot, 25-pound bag.....	2.00
" 5-pound.....	.45

In lots of 2000 pounds and upward, taken at one time, a discount of 20 cents per 100 pounds and 2½ per cent. will be allowed.

Agate and Granite Iron Ware—A revised price-list of Agate Iron Ware has been issued by Lalanca & Grosjean Mfg. Company, 19 Cliff street, New York, and a revised price-list of Granite Iron Ware by the St. Louis Stamping Company, St. Louis, Mo., and 96 Beekman street, New York. In both of these lists there has been a general revision and reduction of the list prices, and a change has also been made in the discount, which is now 25 per cent. in-

stead of 33½ and 10 per cent. as heretofore. The net result is referred to as being a considerable reduction in the price of the goods.

Stanley Rule & Level Company.—Under date January 1 Stanley Rule & Level Company, New Britain, Conn., and 79 Chambers street, New York, issue the following discount sheet, which is subject to an additional discount of 10 per cent. for cash in 30 days:

	Discount. Per cent.
Awl Hafts.....	50
Awls, Patent Pegging.....	50
Beader, Stanley's Universal.....	25
Bevels, Sliding T, No. 25.....	60
" Patent Flush Eureka, No. 18.....	40
Bit and Square Level.....	25
Box Scraper, Adjustable.....	40
Brad Awls, Handled.....	30
Butt and Rabbet Gauge.....	25
Clapboard Marker.....	25
Clapboard Gauge.....	25
Chalk Lines, Reels and Awls.....	30
Carpenters' Tool Handles.....	40
Chisel Gauge.....	25
Countersinks, Wheeler's Patent.....	50
Dowel Sharpener.....	50
Gauges.....	60
" with Improved Face Plate.....	60
" Butt and Rabbet.....	25
Handles, Brad Awl.....	30
" Plane.....	40
" Saw.....	40
" Screw Driver.....	50
Hammers, Magnetic.....	30
" Tack, No. 4.....	30
" Steak.....	30
" Upholsterers'.....	30
Hollows and Rounds, for Plane No. 45.....	25
Level, Bit and Square.....	25
Levels, Machinists' Iron.....	40
Level Glasses.....	70
" Sights.....	25
Mallets.....	25
Miter Boxes.....	25
" Squares.....	40
" Try Squares.....	40
Odd-Jobs, Stanley's.....	25
Plumbs and Levels, Non-Adjustable.....	75
" Patent.....	75
" Hand-y.....	25
" Duplex.....	25
" Nicholson's Patent.....	40
Pocket Levels.....	70
Planes, Bailey's Adjustable, iron.....	50
" " " wood.....	50
" " " block.....	50
" Stanley " iron.....	50
" " " wood.....	50
" " " block.....	50
" Victor Circular, No. 20.....	50
Plane Irons.....	50
Planes, Beading.....	25
" Rabbet and Slitting.....	25
" Chamfer.....	25
" Dado.....	25
" Floor.....	25
" Nosing, for Plane No. 45.....	25
" Rabbet.....	25
" Rabbet and Filletster.....	25
" Router.....	25
" Scrub.....	25
" Tonguing and Grooving.....	25
Plow, Dado, Filletster, &c.....	25
" Filletster and Matching Plane.....	25
" and Matching Plane, Bull Nose.....	25
Plumb Bobs, Adjustable.....	40
Roofing Brackets.....	25
Rules, boxwood, Stanley's.....	80
" ivory.....	50
" Stearns'.....	50
" miscellaneous, Stanley's.....	60
Scratch Awls, handled.....	30
Screw Drivers, No. 64, varn. handles.....	65
" 86.....	70
Spoke Shaves, Bailey's.....	50
Shave Cutters, Bailey's.....	50
Trammel Points.....	40
" for Rules.....	25
Tool Handles and Tools, Excelsior.....	40
Try Squares, No. 20.....	60
" Adjustable, No. 14.....	40
" Iron Handle, No. 12.....	40
" Inlaid, No. 10.....	40
" Plumb and Level.....	40
Try Square and Bevel, Combination.....	40
" and Miter Square, Winterbottom's.....	40
Veneer Scrapers.....	50

Glass.—The Glass industry is waiting for developments and supplying the present demand. There is no particular attempt to anticipate the future, as

the uncertainty of tariff legislation prevents any definite steps in the line of expansion. Favorable building weather in a large portion of the country creates a demand which it is understood is preventing any accumulation of stocks at factories. While no factories are reported as closing down, few additional ones are starting up, and an equivalent to 1118 pots are represented as now being in operation. As has been pointed out before, any change in tariff is not likely to take effect during this fire, up to July 1, 1894, but it will have a depressing effect upon prices if it is reduced. In some other lines related to the Hardware trade prices have been reduced in anticipation of lower tariff. Pittsburgh prices are given as 85 and 5 and 5 per cent. discount for single, and 85 and 10 and 5 per cent. discount for double strength Window Glass. Western factory quotations are reported as 85 and 7½ per cent. discount for single, and 85 and 10 and 10 to 85 and 15 per cent. discount on double strength Window Glass. The Plate Glass situation has improved to a limited extent, as some factories have orders and others anticipate starting. Prices show no improvement over those for the past few weeks and are reported as follows: Large plate, 60 and 10 and 10 to 70 and 5 per cent. discount; small 70 and 5 to 70 and 15 per cent. discount.

Annual Dinner.

SICKELS, SWEET & LYON, 35 Barclay street and 40 Park place, New York, gave their fourth annual dinner to employees of their establishment, Wednesday evening, December 27, at the Metropolitan Hotel. This custom has evidently become one of the unwritten laws of the house, and judged by the spirit of appreciation among the recipients of the firm's hospitality it will not be allowed to lapse. It assuredly promotes good fellowship and mellows many of the asperities of business life. While the epicurean pleasures of a well cooked and admirably served dinner are not to be ignored, after all, it will be conceded that the fact that the management are sufficiently interested in the well being of those in their service to greet them socially once a year and entertain them as guests at dinner is really the best feature of the occasion. Dinner was announced at about 7.15 o'clock, and, including principals, 38 persons sat down. There were, in addition, four ladies, members of the hosts' families, who were seated at a detached table on a platform at the head of the room. A long table running lengthwise of the banquet room was decorated with candelabra and set pieces of confectionery, one of which represented Hermes, the mythological winged messenger of the gods, which possibly may have been a delicate suggestion to the younger element to be expeditious when on errands. A short table, accommodating six, was placed at the head of the large table, at right angles with it. At this table, presided over by the genial and efficient head of the firm, Robert Sickels, were the other partners and two or three of the older employees. The *ménu* cards were printed in blue on heavy board

with beveled gilt edges. *Boutonnieres* were provided for all. After coffee and cigars, these being the limits of dissipation, the company were entertained by Messrs. Dederer and Sniffen, who played and sang, while those present joined them in a *répertoire* which ran from "Les Rameaux" to "The Bowery," with a choice filling of college and other popular airs. After a few informal dances, with three rousing cheers for the entertainers, the guests bade their hosts good night, not, however, before one of the active members of the firm had duly insinuated that the time book had been found and dusted off and would be doing duty at the old place in the morning. This, however, only awed the new comers. Among those present were: J. S. Edwards as guest, having severed his connection with the house some time ago; Arthur Fuller, A. B. Coles, J. R. Loder, Geo. W. Whiting, E. C. Hamilton, J. S. Ingoldsby, E. C. Hillon and Philip Schmidt.

Barb Wire In 1893.

DURING the greater part of the past year the Barb Wire market was comparatively even in the matter of prices, but the last few months developed considerable weakness, and prices fell off to the comparatively low figure at which they closed in December. The course of the market is indicated in the following quotations, which give the prices for Galvanized Four-Point Barb Wire, in carload lots at mill, at the close of the months named:

January.....	\$2.40
February.....	2.40
March.....	2.45
April.....	2.45
May.....	2.45
June.....	2.45
July.....	2.45
August.....	2.45
September.....	2.35
October.....	2.25
November.....	2.15
December.....	2.10

The Chicago Barb Wire Trade in 1893.

At the close of 1892 an upward tendency in the price of Barb Wire was reported by manufacturers. The failure of the Joliet Enterprise Company had removed from the market a serious disturbing element and the orders being entered for the spring trade were very promising. As January progressed, however, business fell off and an effort was made to unite the manufacturers of Barb Wire as well as of Wire Nails into an association to control the output and regulate prices. The movement so far succeeded that for four months there was a remarkable steadiness to prices. An advance would have been made in March if jobbers had not purchased heavy stocks, thus placing themselves in a position to take manufacturers' trade if the opportunity afforded. March and April were excellent months, but May was disappointing, and in June prices weakened, although there was some improvement in demand. Factories suspended operations in July and August, but prices continued to decline, although sales were only made from stock. In August the I. L. Ellwood Mfg. Company issued a circular in which they

announced that they would thereafter refuse to give long credits, usually known as spring terms. This instituted a reform in the trade long desired by many manufacturers. September brought some increase in the trade, but not so much as had been expected, and manufacturers then began to cultivate the retail trade, selling mixed carloads of Wire Nails and Barb Wire. October was a quiet month, but November was rather more active, with good sales reported in the South and Southwest at the sacrifice of prices. Orders for spring shipment began to be taken in December. During this month the Chicago market was demoralized by the appearance of salesmen for Eastern factories, who quoted prices much lower than had hitherto been current.

The tendency in the West to prefer Galvanized Barb Wire, which was noted in 1892, became much more pronounced in 1893. The basis of quotations has therefore been Galvanized this year instead of Painted. In making up the usual table showing the range of prices for the year Galvanized has also been substituted for Painted. At the beginning of 1893 the difference between Galvanized and Painted was 45 cents per 100 pounds, but it is now only 40 cents. With this explanation the following table is presented, giving monthly average prices for factory shipments from works in the vicinity of Chicago:

Months.	Galvaniz'd	Painted.			
		1893 Cents.	1892 Cents.	1891. Cents.	1890. Cents.
January...	2.65	2.60	2.70	3.25	
February...	2.60	2.45	2.50	3.35	
March...	2.60	2.40	2.85	3.30	
April.....	2.60	2.30	2.85	3.15	
May.....	2.60	2.30	2.82½	2.90	
June.....	2.55	2.30	2.75	2.85	
July.....	2.52½	2.30	2.70	2.85	
August...	2.50	2.20	2.77½	2.85	
September...	2.45	2.20	2.80	2.85	
October...	2.40	2.15	2.55	2.85	
November...	2.40	2.15	2.55	2.75	
December..	2.35	2.10	2.55	2.70	
Average for year..	2.55	2.29	2.72	2.97	

Wire and Cut Nails in 1893.

THE PAST YEAR witnessed a decided decline in the price of both Wire and Cut Nails, the decline having been most marked in the latter half of the year, especially the months of October, November and December, when exceedingly low prices were developed.

Wire Nails.—The Wire Nail market opened in January weak and somewhat irregular, \$1.40 being the price for round lots at mill, but this price was not maintained very strictly, concessions being, however, small and rather exceptional. The volume of business during the month was large, but the price for attractive orders settled to \$1.35 at mill. Early in February the manufacturers held a meeting, at which \$1.40 was determined on as the price at Pittsburgh and \$1.42½ at Cleveland. This action, in view of the fact that

the demand was good, gave some strength to the market and somewhat advanced prices were for the time quite well maintained, so that the price was advanced to \$1.50 for round lots at mill, and the first quarter of the year closed with a satisfactory condition of things, the mills being well supplied with orders, and quotations firmly maintained on the basis of \$1.50, f.o.b. factory, with Cleveland as the point of equalization for the West and Pittsburgh for the East. Early in April the card rate was advanced to \$1.55 at mill, with a good demand from the trade at large, but with evidences of a disposition on the part of jobbers to undersell the manufacturers from their large stocks, which were purchased at relatively low figures. The price was, however, well maintained by the manufacturers until early in May, when signs of weakness began to develop, and from that time, except as noted below, there has been a gradual settling of quotations until the extremely low point touched in December was reached. In the latter part of May the market was represented by the quotation of \$1.50 at mill, but the price gradually weakened until at the close of the half year the price was \$1.35, which was not, however, rigidly adhered to. The demand was also materially diminished, and in order to prevent the accumulation of Nails the mills shut down quite generally during July and for the greater part of August. During these months there were many negotiations among the manufacturers with a view to some arrangement for the regulation of production and prices. As a result of these conferences the manufacturers agreed upon the advanced price of \$1.50 for carload lots at mill, a price which was maintained until September, notwithstanding the fact that the demand was comparatively light. Weakness was then developed and the price was scaled down to \$1.30 or \$1.35, the market being quite irregular and in a decidedly unsatisfactory condition. During October the market was in a general way represented by the quotation of \$1.30 for carload lots at mill, but November opened with a quotation of \$1.20 to \$1.25, the month closing at \$1.15 to \$1.20. December witnessed a further decline, the price having settled to \$1.10, some large orders, however, having been placed at \$1.05. It will thus be seen that the decline in price during the year was exceedingly marked, lower figures having been developed than had previously been thought possible.

Cut Nails—The course of the Cut Nail market during the past year was similar to that of Wire Nails, having been characterized by an unprecedented decline in prices. It is difficult to compare the quotations at the opening and the close of the year, from the fact that during the first two months Nails were sold from the old Cut Nail card, while in March the Wire Nail card was adopted by the Cut Nail manufacturers and has since been adhered to, very much to the satisfaction

and convenience of the trade. The market in January opened at \$1.40 for carload lots at mill, and closed in December at 90 cents; but these figures, for the reason stated, give an exaggerated impression as to the decline. For purposes of comparison, the date of the adoption of the Wire Nail card, which went into effect March 1, must be taken instead of January 1. In March Cut Nails were quoted at \$1.25 for carload lots at mill, a price which ruled for the greater part of the month, there being toward the end of March something of a weakening, which continued without much reaction until the end of December, when the lowest prices known in the history of the trade were developed. The course of things is represented in the following quotations, which give the price of carload lots at mill at the close of each of the months named :

March.....	\$1.20
April.....	1.15
May.....	1.10
June.....	1.05
July.....	1.05
August.....	1.05
September.....	1.00
October.....	1.00
November.....	.95
December.....	.90

The Chicago Nail Trade in 1893.

The third in a series of years of declining prices was the record of 1893. With only an occasional slight reaction Nails have steadily fallen in value since the beginning of 1891. Factory lots of Wire Nails, Chicago delivery, sold at an average of \$2.22½ in January, 1891; at \$1.82½ in January, 1892; at \$1.57½ in January, 1893, and at \$1.27½ in December, 1893, showing a total decline in this period of nearly \$1 a keg from prices which were considered at the time by no means high. Cut Steel Nails observed the same laws of trade, selling at an average of \$1.75 in January, 1891; at \$1.62½ in January, 1892; at \$1.60 in January, 1893, and at \$1.17½ in December, 1893. The decline in Cut Steel Nails was not so great as in Wire Nails, and would have been less than here indicated if the card had not been changed during the past year and prices thereafter quoted on a new basis. The price of Wire Nails has been affected by the starting of more factories in the West, but more particularly by the remarkable cheapening of raw material, an unprecedented decline having occurred in Steel Billets and Wire Rods in 1893, amounting almost to a revolution. The failure of the Baackes Wire Nail Company, at Cleveland, and the withdrawal of the Carnegie Steel Company from the Wire Nail trade later in the year appeared to have no effect in steadying the market. The dullness in the building trades during the year caused a shrinkage in the volume of business, which brought about a competition for orders keener than anything before experienced by the Wire Nail makers. Foreseeing the unfavorable conditions likely to prevail during the year a heroic effort was made during the early

months to control the output. Meetings of Wire and Wire Nail manufacturers were held at Chicago in January and February to endeavor to arrange a plan by which prices could be maintained on a remunerative basis, and for a time the success of the movement seemed assured. Rates were fixed at \$1.40, Pittsburgh, and \$1.42½, Cleveland, and afterward advanced to \$1.65, Chicago. March and April prices therefore ruled higher than those of January and the early part of February, and jobbers bought freely in the belief that a firm basis had been reached. In the meantime the Cut Nail manufacturers had decided to adopt measures to prevent the practice of quoting special prices on high averages. A meeting was held January 31, in Philadelphia, at which a list price, subject to a discount, was adopted; but the innovation was not well received, and meetings were held at Pittsburgh and Wheeling to devise something better. On February 15, at Pittsburgh, it was decided to adopt the Wire Nail card, so that but one card would thereafter be used for all kinds of Nails; and this action met with the instant approval of manufacturers and merchants. A higher base rate was fixed, however, than the equivalent of the price ruling when the new card was adopted, and a declining tendency was noted in March.

April was a month of good business in both Cut and Wire Nails, and the manufacturers of the former thought they could discern some recovery of the trade which had been won from them by the Wire Nail makers. An attempt was made in April to secure another advance on Wire Nails, but jobbers were so well stocked at lower prices that the movement merely threw the control of the trade into their hands for the time being. May was a month of restricted business for manufacturers and prices receded on both Cut and Wire Nails. The effort to maintain a uniform rate on Wire Nails was abandoned, and manufacturers quoted independently. Transactions in June were small until a decided break in Wire Nail prices occurred, when heavy sales were made at the lower rates. During this month the Wheeling manufacturers of Cut Nails secured low lake freights to the Northwest and handled considerable business. In July there was a general shut down of factories and stocks were expected to show a rapid decline, but the financial situation affected consumers so that the demand shrunk to small proportions and light stocks were more than sufficient to meet it. On July 19 a meeting of Wire Nail manufacturers was held in Chicago to again attempt the formation of an association to control the trade. Weekly meetings were held for some time afterward, but it was found impossible to get all the makers to unite in the movement. There was some improvement in the demand in August, and prices were a little stronger while there was a good prospect of the asso-

ciation being formed. An improved demand was also noted for Cut Nails.

In September the Wire Nail manufacturers again began to press sales, as the factories had been started, and the effort to control prices was dropped. A heavy business caused for a time an appearance of firmness, but this was lost when the demand abated and prices drooped. October and November were months of much better business, as Northwestern buyers placed large orders for delivery before the close of navigation. A heavy cut in freight rates to the Southwest also enabled large shipments of Cut Nails to be made to Texas. December was a period of comparative dullness in the Chicago market.

The course of prices during 1893 as compared with 1892 is shown in the following table of monthly averages on both Cut Steel and Wire Nails, factory shipments f.o.b. Chicago :

Months.	1893.		1892	
	Cut Steel.	Wire.	Cut Steel.	Wire.
January....	\$1.60	\$1.57½	\$1.62½	\$1.82½
February....	1.60	1.55	1.62½	1.87½
March.....	1.42½	1.65	1.62½	1.85
April.....	1.35	1.65	1.60	1.75
May.....	1.32½	1.60	1.60	1.70
June.....	1.25	1.50	1.62½	1.57½
July.....	1.22½	1.47½	1.60	1.70
August....	1.22½	1.47½	1.62½	1.70
September..	1.22½	1.47½	1.62½	1.67½
October.....	1.22½	1.40	1.62½	1.57½
November...	1.20	1.30	1.60	1.60
December...	1.17½	1.2½	1.60	1.57½
Average for year.....	\$1.32	\$1.50	\$1.61	\$1.70

The average for the year 1891 was \$1.70½ for Cut Steel and \$2.05 for Wire; for 1890, \$2.05 for Cut Steel and \$2.51 for Wire.

Penny as Applied to Horse Nails.

FROM a gentleman prominently identified with one of the leading Hardware houses on the Pacific Coast we have the following communication with reference to the origin of the numbers by which Horse Nails are designated, in which he supports the theory that, as in the case of Cut Nails, the designations of sizes were originally coupled with the term penny, as follows:

Referring to an interesting article in your issue of the 14th ult., entitled "Origin of Hardware Terms," I beg to add my mite of testimony in favor of the theory that penny is a corruption of pound. A good many years ago, before Putnam and Globe and other American makes of Horse Nails had gotten any standing with the trade, my old boss used to import Griffen, or, as they were commonly called, "G" Nails from England. Our invoices were invariably made out by the number of thousands of Nails of each size in the manner following :

50 M Horse Nails, 6 lb.,

which would, translated into our fashion of billing, be 300 pounds 6d.

Horse Nails. Among old papers in our loft there are a number of English invoices made in this way. The present standard of weights may not, as you say, correspond with this theory, but it is certain that in the case of the Griffen Nails actual weights of Nails delivered did so correspond. To any one acquainted with the dialect of English Nail makers the corruption of pound into pun and the transition thence into penny is by no means a far fetched theory.

Trade Items.

NATIONAL SAW COMPANY have issued a circular announcing the fact that their main office is now at Newark, N. J., where all orders are hereafter to be addressed. The company are operating the plants of the Wheeler, Madden & Clemson Mfg. Company, Richardson Bros., Harvey W. Peace Company and Woodrough & McParlin.

THE TRADE will be surprised to learn that Henry Moore has withdrawn from the Woolley, Baynon & Moore Company, 89 Reade street, New York. He has been connected with that corporation since their formation in 1886 as Woolley & Moore Company. From his advertisement among the Special Notices it will be observed that he is desirous of making arrangements with manufacturers of Shelf and Heavy Hardware to represent them, and refers to his experience and wide acquaintance with the trade.

IN THEIR PAGE ADVERTISEMENT in this issue McCaffrey File Company, Philadelphia, illustrate the exhibit which they made at the Columbian Exposition, and mention the fact that a blue ribbon with medal and diploma were awarded to them for their display. They also call attention to their full line of Files and Rasps, for which they claim sharpness of tooth, tenacity of temper and superior wearing qualities.

E. LOTHAR SCHMITZ, 92 Reade street, New York, is to be congratulated that his stock of Fox Safety Razors, at the above address, is still intact and uninjured, notwithstanding a disastrous fire next door to him a few nights ago. A stout brick wall was all that prevented serious consequences. Trouble, however, came to the *fac-simile* Safety Razor, about 4 feet long, used as a sign, suspended over the entrance to his place of business. With careful manipulation it can, however, be renovated so that it may again do duty in its former position.

J. W. OWEN, employed as assistant buyer by H. C. Marshall, 99 Chambers street, has secured leave of absence until spring, for the purpose of taking a vacation, when he will again be at his desk.

THE NATIONAL RIVET & NOVELTY COMPANY, 104 Chambers street, New York, are introducing a hollow Rivet and a number of Riveting Machines with which to set them. The Rivets are made of Siemens-Martin steel, by a method which, it is claimed, permits of the Rivets being sold at a less price than any other hollow Rivets can be produced for. The Rivets are intended largely for belting, trunks, straps, harness, sample cases, boots, shoes, cloth, &c. A catalogue is issued by the company illustrating the goods with prices. Geo. P. Benjamin, 104 Chambers street, is sole agent for the United States.

GRISWOLD MFG. COMPANY, Erie, Pa., send out A Happy New Year's greeting, together with a miniature sample of their ware. This is an Erie model Griddle, about 3 inches in diameter, upon the back of which reference is made to the World's Fair awards

granted to their ware. A folder represents in verse the advantages of the ware, both polished and enameled.

THE WM. SCHOLLHORN COMPANY, New Haven, Conn., manufacturers of Scissors and Shears, Bernard's Pliers, Hardware Specialties and Tools, for the purpose of facilitating the sale of their goods, on January 1 transferred their selling department to 65 Duane street, New York. This will be under the management of Julius Berbecker & Co., who will market the entire production. F. J. Schollhorn, secretary and treasurer of the Schollhorn Company, will be in immediate charge of the office and salesroom at the address given.

ANNOUNCEMENT IS MADE by the heirs of John B. Selheimer, who recently died at Lewistown, Pa., that they have agreed to allow the entire estate to remain undivided, and to continue the Hardware business without changing the name. The business will, therefore, continue to be conducted in the name of John B. Selheimer in all respects as formerly, the widow and heirs retaining their interest therein and the entire estate being liable for all accounts. Joseph M. Selheimer will manage the business for the estate and make all contracts relating to the concern.

E. D. EYRE has withdrawn from the firm of Buehler, Bonbright & Co., Philadelphia, the copartnership having expired by limitation. J. S. Bonbright will continue the wholesale Hardware business at 427 Market street under the old firm name. Alfred N. Diller and Edward H. Remsen have been admitted to an interest in the business.

THE EMPLOYEES of the King Hardware Company, Atlanta, Ga., were banqueted on the 26th ult. Nearly all of the guests made brief addresses and the occasion was a most pleasant one.

MILLER, SLOSS & SCOTT, 12-16 Pine street, San Francisco, Cal., invite those of their customers who are intending to visit the Midwinter Fair to be held in that city to use their office as headquarters while in San Francisco, for conducting their correspondence and receiving mail. They state that they will be pleased to furnish any information that may be desired concerning the fair and other points of interest, intimating also their willingness to assist in procuring in advance such accommodations as their customers may require.

THE MANN EDGE TOOL WORKS, Lewistown, Pa., whose works were completely destroyed by fire in April last, have resumed the manufacture of Axes and Edge Tools in their new plant, and advise us that they are now ready to execute orders promptly and satisfactorily. Their new works are described as being as nearly fire proof as possible and very complete and substantial, with a capacity of 1200 Axes per day. The plant is operated by an ample water power, and the general arrangement is very convenient and economical. The company refer to the excellent quality and finish of their goods as resulting from the superiority of the materials used, the safety in their methods and the long experience and close personal attention which they are able to give to the business. The company are now manufacturing Chopping Axes of all American patterns, both single and double bits, also Broad Hatchets of a superior quality. They are likewise making preparations for the manufacture of Broad Axes and Adzes. The officers of the company are as follows: Joseph R. Mann, president; William Willis, vice-president; Robert Mann, Jr., secretary and superintendent, and S. B. Weber, treasurer.

AT A MEETING of the Western Commercial Travelers' Association, held at the Lindell House, St. Louis, on the 26th ult., R. W. Shapleigh of the A. F. Shapleigh Hardware Company was elected president for the ensuing term. The other officers elected were as follows: First vice-president, John S. Moffitt, St. Louis; second vice-president, George Krug, Omaha, Neb.; third vice-president, Ed. O. Wilde, St. Joseph, Mo.; fourth vice-president, Jefferson J. Lamar, Fort Worth, Texas; fifth vice-president, Chas. Straus, St. Paul, Minn.; sixth vice-president, George H. McCann, Springfield, Mo.; directors to serve two years, D. W. R. McDonald, Philip Constan, Joseph S. Goodfellow, James P. Litton, Samuel Schroeder and Adrian De Young. An extra assessment of \$1 per annum was decided on to meet the expense of canvassing for new members.

THE PIKE MFG. COMPANY, Pike Station, N. H., issue a list of job lots of goods which they desire to close out before stock taking. They state that they will be sold extra cheap, especially the Razor Hones, Emery Scythe Stone, Table Hones and Labrador, Chocolate and Niagara Stone. A liberal discount will be given on the Washita, Arkansas and Hindostan Stone which appear in the list. The invoice will be made payable April 1, 1894. Prices given will only apply to this stock, and orders will be entered in the order received.

THE COPARTNERSHIP heretofore existing under the firm name of Brooks, Baldwin & Robbins, doing a general wholesale Hardware business at 113 and 115 Milk street, Boston, has been dissolved by mutual consent. The business of the late firm will be continued by Thomas H. Baldwin, John H. Robbins, Austin H. Decatur and William A. Hopkins, who have formed a copartnership under the firm style of Baldwin, Robbins & Co.

WILLIAM D. BANCER, a member of the Hardware Club, although not a Hardwareman, died suddenly at his home in Brooklyn, Friday, December 29, aged 57 years and eight months. His death was due to neuralgia of the heart, from which he had suffered for several days. He was the secretary and general manager of the American News Company. A man of fine abilities, unblemished reputation and unostentatiously generous, he will be sincerely mourned by those who knew him socially or in a business way.

AARON I. SANSON, JR., advises us that he has severed his connection with the Sanson Cutlery Company of Wilkesbarre, Pa., and after January 1, with office in Philadelphia, will represent in the State of Pennsylvania manufacturers of Cutlery, Spoons and specialties suitable for the Hardware trade.

Calendars.

CLEVELAND TWIST DRILL COMPANY, Cleveland, Ohio, present with their compliments an 1894 Calendar and memorandum combined. This is a book having seven days to each page, fastened on a stiff card, and is held open by brass clamps on each side. The space allowed for each date has four lines upon which to make memoranda of things of which the possessor wishes to be reminded. The tinted card upon which the book is fastened is printed in colors, giving the company's address and an illustration of a Drill. The company express a wish to mail this calendar to everyone interested in their line of goods.

C. F. BALLARD, Washington C. H., Ohio, is presenting to his trade a calendar with a movable hand and

arm, which can be set to point to any date of a given month. On the back of the calendar are the following remarks:

I know why you like this calendar. It is a pointer directing you where to spend every cent to advantage and get information not to be had elsewhere about the general Hardware, Paint, Farm Implement and Vehicle trade, worth dollars to remember.

WITH AN 1894 CALENDAR, showing their business block, the Robert Donahue Iron & Hardware Company, Burlington, Iowa, call attention to the fact that aside from their regular stock, they manufacture Wagon Ironed Goods, Wagon Neck Yokes, and Wagon and Plow Singletrees and Doubletrees, the Albright Patent Buggy Neck Yokes and Neck Yoke Centers and the Romkey Patent Wagon Box Rods. In addition to these they make Iron Bridge Bolts of all sizes and lengths to order.

SAM'L H. BLACKWELL, Fairfield, Maine, sends an 1894 calendar, upon which attention is directed to a large line of goods pertaining to a retail Hardware stock. The calendar card shows a colored scene, under which are date sheets.

WILLIAM CABLE WIRE MFG. COMPANY, 43 Fulton street, New York, with factory at Brooklyn, issue a calendar for 1894, in which the date figures are unusually large. The calendar is also used to call attention to their line of manufactured goods. Their line includes Coal and Sand Screens, Brass, Copper and Iron Wire Cloth, Spark Guards and Nursery Fenders, Silk Bolting Cloth, Fourdrinier Wires, Steak and Oyster Broilers, Garden Arches, Cylinder Molds, Riddles and Sieves, Copper, Brass and Iron Wire, &c.

THE HOYER & BOEBINGER HARDWARE COMPANY, 59 East Pearl street, Cincinnati, Ohio, in issuing their sixth annual calendar and circular, call attention to the fact that the goods furnished by them are of the highest standard in quality and finish. In substantiation of their claim a representative list of goods is given with manufacturers' names.

Price-Lists, Circulars, &c.

WILEY & RUSSELL MFG. COMPANY, Greenfield, Mass.: 1894 price list of patent screw cutting and other labor saving Machinery and Tools. The catalogue contains 158 pages, being about one-third larger than their 1893 catalogue, and has a number of new Tools and assortments of Screw Plates, also some changes in prices. The book is fully illustrated, showing the goods mentioned, accompanied by descriptions and prices.

T. G. ELLSWORTH, 85 Chambers street, New York: Ames Plow Company's Ice Tools. Illustrations are shown of Ice Markers, Ice Plows, Snow Ice Plane, Ice Saws, Grapples, Tongs, Chisels, Hooks, Nets, House and Car Runs, Clearing and Scoop Scraper, Grooving or Hoisting Harness, Snow Shovels, &c.

THE CLAUSS SHEAR COMPANY, Fremont, Ohio: Revised price-list for 1893-94. Illustrations, prices and descriptions are given of the Clauss Carver, Knife Sharpener, Flexible Pot and Kettle Cleaner, Clauss Bread, Cake and Paring Knives, and Scissors and Shears.

D. EDDY & SONS, 336 Adams street, Boston, Mass.: Eddy's Refrigerators. Refrigerators are shown in upright and apartment house styles, also the Globe, Eddy's Chests, Grover's Chest

and Refrigerators, Eddy's Hardwood Refrigerators, restaurant, hotel and nursery Refrigerators. The firm have been manufacturing Refrigerators for 46 consecutive years.

ANTHONY WAYNE MFG. COMPANY, Fort Wayne, Ind.; Washing Machines, Ironing Boards, &c. Illustrations are shown of the Wayne Combination Washer, Western Star Washer, Anthony Wayne No. 1, No. 2 Anthony Wayne Washer, Wayne American Washer, Ironing Boards, Steel Clad and other Wringers.

THE ANDREW B. HENDRYX COMPANY, New Haven, Conn.: Fishing Reels. An 1894 catalogue and price-list of 80 pages illustrates a full line of Hendryx Reels in a large variety of weights and styles with full descriptions, and the line capacity of each in feet. The manufacturers refer to the patented improvements embodied in their Reels as resulting in lightness, durability and wearing qualities.

LALANCE & GROSJEAN MFG. COMPANY, 19 Cliff street, New York: 1894 price-list of Agate Iron Ware. The book contains 152 pages, with illustrations and list prices of the full line of these goods. These are shown in a large number of styles and sizes, giving an almost endless variety from which to select.

ST. LOUIS STAMPING COMPANY, St. Louis, Mo.: Reduced price-list of Granite Iron Ware. This catalogue, under date of January 1, 1894, illustrates and describes these goods, with descriptions, sizes, &c. Near the front of the book is a telegraphic code, and in the catalogue is a code word for every article made in Granite Iron Ware. The code word is placed immediately over the number or size of each article, and is designed for convenience and to save expense in telegraphing orders.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

White Lead.—The chief feature in this line is the official announcement of a reduction in list prices by the National Lead Company that brings quotations down to late actual selling prices. In other words, the basis of 5¼¢ for both Dry Lead and Lead in Oil is now openly quoted for lots of 12 tons and over at one purchase. This reduction is merely in harmony with expectations, however, and fails to stimulate business in any remarkable degree. The significant feature is that open quotations on Old Dutch Process Lead are brought down to a level with late selling rates for so-called inferior products or closer in line with the cost of raw material. The new list, dated January 1 is as follows:

White Lead, Dry or In Oil.

In lots of less than 500 pounds....	6½¢, net.
In lots of 500 pounds to 5 tons, in one purchase.....	6¢ "
In lots of 5 tons to 12 tons, in one purchase.....	5½¢ "
In lots of 12 tons and over, in one purchase.....	5¼¢ "

These figures are for Lead in kegs. Dry Lead in barrels is ½¢ less. The usual difference is made in quotations for small packages. Thus, 12½-lb tin pails are about 1¢ over the price quoted for kegs, while 25-lb and 50-lb tin pails are ½¢ over keg price, and 1-lb, 2-lb, 3-lb and 5-lb tins are held at the usual 2½¢ advance. On lots of 500 lb and over the terms are 60 days or 2% discount for cash if bill is paid in 15 days from

date of invoice. To make either of the above required quantities any assortment of packages may be counted.

Red Lead and Litharge.—List prices have been revised as follows:

In barrels and half barrels:	Cents.
Lots of less than 500 lb.....	6½
Lots of 500 lb to 5 tons, in one purchase.....	5½
Lots of 5 tons to 12 tons, in one purchase.....	5
Lots of 12 tons and over, in one purchase.....	5

The terms are the same as those applied to White Lead, and bring the net on large lots down to a level with late selling prices for foreign brands. Business has been stimulated very little, since the reduction in prices was quite generally expected, while prevailing conditions leave no cause for reckoning upon any considerable reaction in the immediate future.

Orange Mineral.—The market is uncertain in tone, with more or less decided leaning in buyers' favor. Both French and German brands, in fact, may be secured in round lots at prices below those generally quoted.

Zincs.—There is still some indication of weakness and irregularity to the market for American Oxide. Prices are not positively lower, but special rates on contracts involving round lots are the rule rather than the exception. Large orders are extremely few and far between, however, and the demand is exceedingly tame.

Beck & Gregg Hardware Company's Banquet.

THE first annual banquet of the Beck & Gregg Hardware Company, Atlanta, Ga., was held at the Hotel Aragon on Saturday evening, December 23. The menu was an excellent one, and the occasion for its wealth of reminiscence and the beauty of its decorations was a most notable one. Some 33 persons sat down to the dinner, including the stockholders of the company, L. H. Beck, W. A. Gregg, W. M. Crumley, R. T. Semmes and W. A. Parker. After the dinner a number of speeches were made in which the growth and evolution of the firm were comprehensively reviewed. The following were the speakers and the toasts to which they responded:

L. H. Beck—"From Porter to President."

W. A. Gregg—"Past, Present and Prospective."

W. M. Crumley—"Art and Improvement in Hardware."

R. T. Semmes—"Pointers on Profits."

W. A. Parker—"What I Have Seen Through a Key Hole."

Norman Sharp—"Conservatism vs. Progressiveness."

L. W. Meakin—"The Piedmont Region."

J. B. Hardin—"The Mountains of Georgia and Alabama."

W. C. Wilson—"The Carolinas."

E. T. Jervey—"The Travelers Between Two Fires."

J. W. Melton—"The Wire Grass Section."

A. W. Kennedy—"Tricks In All Trades but Hardware."

S. E. Clarke—"The Shipping Clerk and His Trials."

C. H. Wilcox—"Atlanta, My Adopted Home."

The banquet was a most successful and happy one, and was heartily enjoyed by all of those present. It is the intention of the company to repeat the dinner annually.

Delivery of Goods.

BY H. P. KING.

A SYSTEM for delivering goods, like other branches of the business, must necessarily vary with the volume of trade and the population of the city. The following suggestions are based on the supposition of a city having from 70,000 to 80,000 inhabitants, a retail store catering to household as well as builders' trade, and the

goods are in a small, light package, the office boy or messenger service can be utilized; if goods are bulky then an expressman must be hired and the expense charged to the customer or not—according to the discretion of the salesman. Under no circumstances should the hours and trips of the delivery wagon be interfered with.

DUPLICATE RECEIPT.

The goods having reached their destination the duplicate receipt is given

ranged that the act of cocking brings the box over an opening and allows sufficient powder to run out into the pan to properly prime the gun. Connected with the trigger is a strip of steel, located over the notches in the stock, and arranged to release the cock when the trigger is pulled. The first charge having been fired, the guard over second hole in barrel is lifted, and the spring under the lock being released, the lock can be slipped back to the second place, when the second charge can be fired. The remaining ten charges can be discharged by a repetition of the pro-



Flint Lock Repeating Rifle.

employment of one delivery wagon which is never called into the service of the shipping clerk.

A COMPLETE LIST.

The first requisite in the disposition of goods sold, is to make a complete list, showing every article which the purchaser has selected and the quantities of each. After the list is called back and checked, the goods that can be wrapped and tied in packages should be cared for at once, to avoid all possibility of being mislaid by casual and careless passers by.

MARKING PACKAGES.

For marking packages a gummed tag is the surest method of avoiding errors in delivery; for bulky goods a string tag or paint, as the case may require. If but one package or article is to be delivered, mark name and address on the tag, but if packages are numerous, mark name only on all tags except one and on that one the name, address, number of packages and list of articles not wrapped.

A CHECK ON THE SALESMAN.

By the enumeration of packages and articles in the duplicate receipt book of the delivery wagon the driver has a check on the salesman and can be reasonably sure of starting right at least. As to the disposition of goods awaiting delivery a counter or floor space devoted to this sole purpose is very necessary. Where it is not practicable to gather all the goods in one space the delivery clerk can ascertain from the before mentioned tag just what goods are to be delivered and go to the different floors or rooms to find them.

DELIVERY WAGON.

The most effective and satisfactory use of the delivery wagon is found in the division of the city into districts and making a trip to each district at stated hours. By this system, if adhered to, a customer can be given definite information as to the time the goods will be received. In case of immediate delivery being required various methods may be followed, according to the circumstances. If the

with them, and the book signed after a careful counting by the party to whom they are delivered. No inspection of packages is practicable, for too much time is consumed and the error in the contents, if any, can only be rectified at the store, and the delivery clerk has his time schedule to keep up.

COMPLAINTS OF SHORTAGE.

Instances are very numerous of contractors making complaints of shortage in goods delivered to unfinished buildings, and such cases seem to afford the largest opportunity for errors. The surest method to pursue under such circumstances is to mark on each package its contents and designate the floor or room for which it is intended, and then call for the foreman of the work to check them before signing receipt. For any error in the contents of the packages the salesman is, of course, directly responsible, and he should send out no bill of Hardware that is not first looked over and checked back by somebody who is acquainted with the goods.

A Flint Lock Repeating Rifle.

A FLINT LOCK Repeating Rifle of curious design is on exhibition at the antique furniture store of John F. Gepke, Chicago avenue and Rush street, Chicago. This rifle was owned by Gen. John B. B. Virginie, and was for a long time in the "haunted house" at the corner of Royal and Hospital streets, New Orleans, La. As "I. Jennings" is stamped on the barrel, such is supposed to be the maker's name. This is probably one of the early attempts at the construction of a repeating rifle, and is intended to contain 12 loads. For convenience in loading, the barrel can be taken apart near the middle, when the 12 charges are put in, care being taken that the powder for each load is opposite a corresponding opening in the side of the barrel. The gun having been properly loaded, the lock is pushed to the front, and the guards, of which ten are shown in the engraving, turned down over the openings in barrel. The lock is held in position by means of a spring that enters one of the openings shown in the lower part of the stock. Attached to the steel cover against which the flint strikes is a small box for powder, which is so ar-

cess described above. The stock of the rifle is of cast brass, and can be taken apart by turning a thumb screw. The removable part of the barrel is rifled, gain twist, while the part attached to the stock is smooth bore.

Double Nail Bins.

WE GIVE HEREWITH in Fig. 807 an illustration of Nail bins used by Frank Alexander & Co., Staunton, Va. They are located under two 20-foot counters, and are open on both sides. Our correspondents consider this arrangement advantageous, as Nails can be weighed from either side, and customers can select the Nails from their side of the counter better than they can describe what

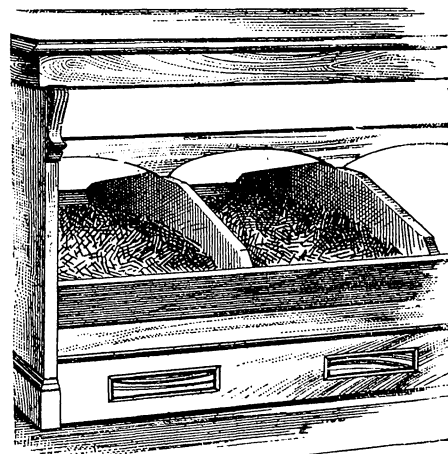


Fig. 807—Double Nail Bins.

they want. Each bin contains two kegs of Nails, and the space between the bin and counter is sufficient to allow a keg of Nails to be thrown in, thus saving the trouble of first emptying them into a scoop. These bins the firm consider more convenient than any other design they have seen. It is suggested that if desired the bins can be made smaller, or that each bin may contain two kinds of Nails, the sizes being separated by a partition running lengthwise of the bin.

An Interesting Section of Shelving.

THE accompanying illustration, Fig. 808, represents a section of shelving, a line of which extends along a portion of one side of the retail department of Dame, Stoddard & Kendall, 374 Washington street, Boston. This shelving has replaced some of less modern construction, and was especially designed for convenience and for the more satisfactory display of the

plate glass sash hung with weights, which when raised slide above the cornice at the top. Three drawers in the section contain such goods as are too small to exhibit on the racks above. The drawers are equal in height to the lower rail of the sash, and are consequently obscured from view when the sash is down. The racks on which the goods are sampled each consist of two strips of wood, one at the front and the other near the back of the case, placed at unequal heights. The front strip is a round piece with a groove at the

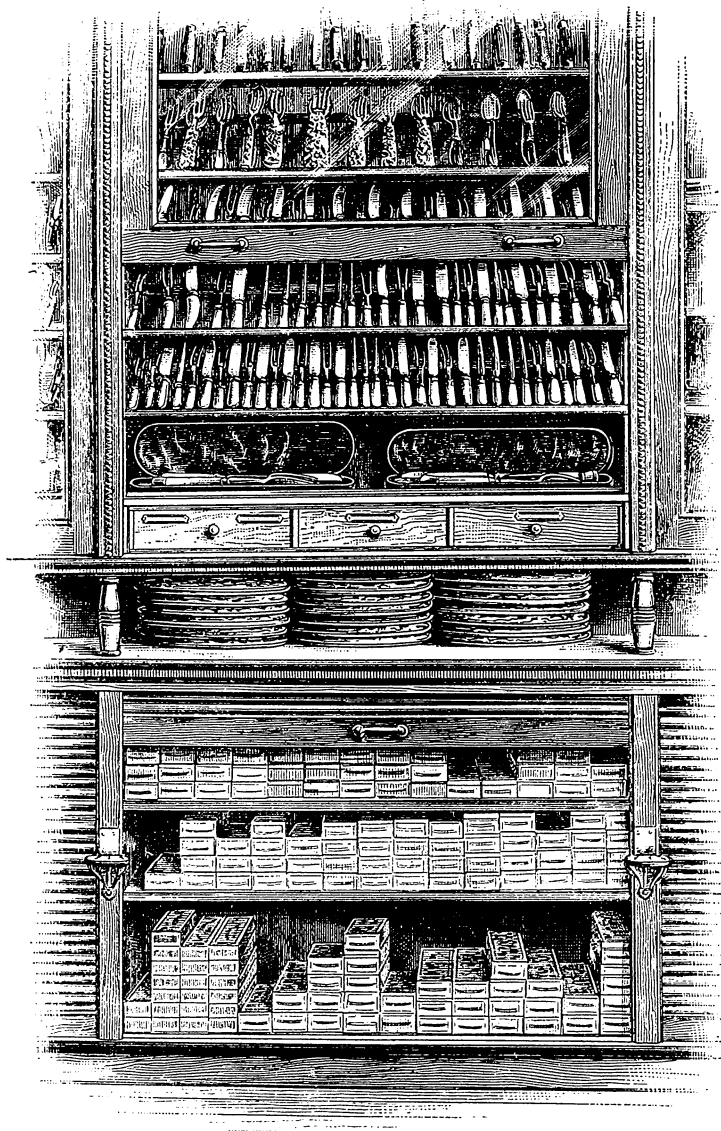


Fig. 808.—An Interesting Section of Shelving.

goods. The space under the ledge is fitted with fronts similar to roll top desks, which slide upward and back, protecting the goods from dirt and dust, and being entirely out of the way when opened. The cupboards under the ledge are devoted to duplicate stock in full packages. Metal steps fastened to the uprights enable the salesman readily to reach the higher goods in the cases above. Immediately above the ledge is an open space for miscellaneous goods, which is utilized for keeping fancy wood bread plates. The cases above are provided with

back sufficient to allow the handles of the goods to rest in it. The back piece is not grooved, but the blades or tangs rest on the top, making the goods plainly visible to customers. The section to the right of the one shown is shelved, alternate shelves being cut in to permit of displaying sets of Carvers and other goods in cases, with the covers raised. Other sections are arranged with special reference to the goods for which they are designed. The cases are handsomely finished and trimmed and present an elegant appearance.

A Novel Roll Paper Holder.

TO AVOID marring a handsome counter top of quartered oak by putting a paper holder on it, Widener Bros. of Belvidere, N. J., made one to be placed in the rear of the counter, as shown in the accompanying cut, Fig. 809. The material required for the device consists of a pair of 5 x 6 plain shelf brackets; a piece of $\frac{7}{8}$ inch half oval iron, three inches longer than the paper roll; two $\frac{3}{4}$ x $\frac{3}{16}$ inch stove bolts; two pieces of No. 10 jack chain, each 4 inches long, and six No. 108 screw eyes. The cost of these is put at 10 cents, and about an hour's time was required to construct the holder. A hole was drilled at each end of the half oval iron and countersunk to receive the stove bolts. The iron was bolted to the end of each bracket to form a cutter, and the brackets screwed to the underside of the counter at the proper distance apart. The screw eyes were put into the counter at the inner edge of the brackets, three in a row; and to corresponding eyes on each side the pieces of chain were hung. A wooden roller with a $1\frac{1}{2}$ x $\frac{3}{16}$ inch oval

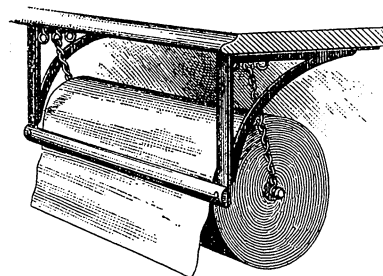


Fig. 809.—A Novel Roll Paper Holder.

head rivet in each end was put through the center of the roll paper; and on the rivets the chains were hooked. As the paper roll becomes smaller, the chains are hooked into eyes nearer the front, thus always keeping the roll swung against the cutter with sufficient force to allow of tearing the paper off. The holder may be put under any part of the counter which is most convenient: the counter in the illustration is cut off to show the holder to the best advantage.

An Effective Sign.

THE PIKE MFG. COMPANY, Pike Station, N. H., have just erected a board sign, 6 x 10 $\frac{1}{4}$ feet in dimensions, in an outside recess of the granite office building on the northwest corner of Broadway and Chambers street. There are several unique features about it. The painting includes a representation of the globe, about 3 feet across, showing the United States and South America, together with Europe and Africa, with the Atlantic between. It is needless to say Pike Station has been given prominence in this connection. On the water section is a reproduction of their registered mark—a pike with a Scythe Stone in the mouth, swimming majestically through the loop of the letter P. A fair inference might be that this particular fish is but one of a school thus employed to expeditiously distribute their goods throughout the many foreign

countres where they are used. In the upper portion of the globe is the modest declaration: "We sharpen the tools of the world." Under the globe are a large number of Stones of varied kinds, shapes and styles, appropriately labeled, together with a number of edge tools on which they are used. At the extreme bottom is given the address of their headquarters in this city—113 Chambers street, John H. Graham & Co., agents.

The Mallory Wheeler Company.

THE MALLORY WHEELER COMPANY, New Haven, Conn., with New York office 64 Reade street, have just issued an 1894 architects' edition of Bronze Door and Window Trimmings. A successful attempt has been made to present a large amount of information useful for architects, in a compact and convenient form, so as to avoid any difficulty in selecting Trimmings for houses. The first page illustrates a Swivel Spindle Front Door Lock, six styles of Escutcheons and three styles of Knobs. Tables give the numbers of the Knobs and Escutcheons which will form suitable combinations with this Lock for trimming front and vestibule doors. Each set is designated by a set number which is used in ordering, avoiding errors and relieving the architect of much labor and uncertainty as to proper combinations. On this page is given the choice of five sets for front doors and five sets for front and vestibule doors. Finishes, of which there are 13, are indicated by numbers, and any style of trimmings may be obtained in any of the 13 finishes. The two succeeding pages illustrate the same line of Trimmings but combined with different locks. Following these are Master Keyed Office Latch Sets, Bronze Inside Mortise Sets, and Bronze Metal Sliding Door Sets. The plan of set numbers is applied to all the foregoing goods.

Illustrations are also given of Bronze Metal Bell Pulls, Electric Push Buttons, Flush Sash Lifts, Brass and Bronze Antique Door Knockers, Bronze Push Plates, Front Door Locks, Escutcheons, Knobs and Push Buttons in Sets; Front Door Sets, Mortise Store Door Lock Sets, Sliding Door Sets, Sash Lifts, Drawer Pulls, Cupboard Catches and Turns, Foot and Chain Bolts, Casement Window Fasteners, Casement Window Adjusters, Storm Door Pulls, Coat and Hat Hooks, Bell Pulls, Screen Door Pulls, &c. The arrangement and comprehensiveness of the catalogue will greatly aid the architect and expedite the proper selection of a fine grade of Trimmings for houses under his charge.

JOHN H. GRAHAM & CO., 113 Chambers st., New York, as manufacturers' agents, are distributing among their patrons a neat and useful souvenir. It is in the form of a pocket match box, $2\frac{5}{8} \times 1\frac{1}{4} \times \frac{1}{16}$ inches in size, nickel-plated. There is a hinged spring cover, a little more than one-half the size of the top, which is kept closed by a catch. On the inner side of the cover is a device for holding squares of sand or emery paper on which to ignite matches. On the cover in outline is the figure of a Lock Nut, made by Eureka Nut Lock Company, while the bottom contains the representation of a railroad pick, calling attention to standard Track Tools made by the Iron City Tool Works. Both companies are located in Pittsburgh, Pa.

It Is Reported—

That C. P. Carpenter, has just opened a new Hardware store at St. Johnsbury, Vt.

That the Hardware store of Mills-paugh & Drake, at Corning, N. Y., was entered by thieves on the night of the 18th ult. Scissors and Knives amounting in value to \$40 were stolen.

That Hammond & Ankeney's Hardware store, at Hagerstown, Md., was burglarized on the 19th ult.

That Edward Ott will soon be admitted to the Hardware firm of Ott Bros., Bucyrus, Ohio. He has for years been connected with the Hardware business of L. D. Boyer, at Swanton, Ohio.

That Francis Chenoweth & Co.'s Hardware establishment, at Birmingham, Ala., was damaged by fire on the 24th ult.

That P. T. Sprecher's Hardware store, at Leaf River, Ill., was entered by burglars on the 21st ult. A quantity of Razors and Pocket Knives were carried away.

That R. C. Wilcox has purchased A. W. Fluke's interest in the Hardware firm of Wilcox & Fluke, Macomb, Ill., and will continue the business. Mr. Fluke will stay with Mr. Wilcox until the first of March.

That R. W. Miller has purchased the Morrison & Sies stock of Hardware at Oxford, Iowa. He takes possession January 1. Mr. Miller has heretofore been the proprietor of a hotel.

That L. L. Pratt has purchased J. C. Cockran's Hardware store at Iowa City, Iowa. Mr. Cockran has been in the Hardware business for 33 years.

That Richard Cary has opened a Hardware store at Alexandria, Mo.

That F. M. Duncan, Ponca City, Kan., who purchased the Hardware store of J. J. McManus, has lengthened the building to 115 feet and has added Furniture to his stock.

That C. G. Jewett's Hardware store at Howell, Mich., was entered by thieves on the 16th ult. and \$100 worth of Revolvers and Razors taken from the showcase.

That James H. Smith, Hardware merchant, Long Beach, Cal., is closing out his business.

That W. M. Dindiger, Hardware merchant, Harmony, Pa., has closed out his business. George Dindiger will continue it.

That R. F. Lewis has bought the Hardware business of Charles R. Ellis at Brandon, Wis.

That Frederickson Bros. have succeeded B. Frederickson & Co., dealers in Hardware, Cameron Junction, Wis.

That on the evening of the 21st ult. fire broke out in the Hardware store of T. M. Roberts, 508 Nicollet avenue, Minneapolis, Minn. It was caused by electric wires. The damage amounted to \$500.

That A. J. Smith and E. W. Chambers, dealers in Agricultural Implements, Waukesha, Wis., have dissolved partnership. The business will be continued by Mr. Chambers.

That Kiff Bros., Hardware merchants, who were recently burned out at Covington, Pa., are contemplating removing to Corning, where they will again engage in the Hardware business.

That Emery Blakeslee has opened a new Hardware store at Spartansburg, Pa.

That R. J. Clark's Hardware store at Port Huron, Mich., was destroyed

on the 23d ult. Loss, \$8000; insurance, \$5,000.

That H. F. Mitchell's Hardware store at Packwood, Iowa, was burned out on the 22d ult.

That the Hardware store of J. A. Campbell, Bancroft, Iowa, was destroyed by fire on the 13th ult. Total loss, \$5000.

That Owen & Young's Hardware store, at Montrose, S. D., was burned out on the 21st ult.

That C. S. Hannaford has recently opened a Hardware store at South Braintree, Mass.

That the Hardware establishment of L. A. May Company, Lynn, Mass., was damaged by fire on the 29th ult. The loss is estimated at \$25,000. The company carried a stock valued at \$80,000.

That the store of Higham Bros. Hardware Company, Grand Forks, N. D., was destroyed by fire on the 24th ult. Loss, \$12,000; insurance, \$8000.

That the Hardware and furniture stock of E. I. Murphy, Arapahoe, Neb., was destroyed by fire on the 24th ult. Loss, \$10,000; insurance, \$7500.

That the Hardware store of Hallowell & Wise, Penn Yan, N. Y., was damaged by fire on the 26th ult. The loss is estimated at \$4500; insurance, \$1500.

That the Osborn Hardware & Tool Company have been incorporated at San Francisco, Cal., with a capital stock of \$50,000. The directors are Frank F. Osborn and Mary A. Osborn of Oakland, Russell W. Osborn of San Francisco, Warren P. Perkins of Modesto, and Edwin van Every of Edendale.

That C. W. Morey and George P. June have formed a partnership under the firm name of Morey & June, and have opened a new Hardware store at Sheridan, Wyoming.

That Burke & Son, Stanton, Ia., have sold a half interest in their Hardware business.

That B. Roether's Hardware store at Milford, Kan., was robbed of \$100 worth of goods on the 16th ult.

That E. J. Benedict and J. W. Wohlford have purchased the stock of Hardware of C. S. Cummings, Centralia, Kan. The style of the firm will be Benedict & Wohlford. Mr. Benedict has been in the employ of Mr. Cummings for 15 years.

That a new Hardware store has been opened at Sylvan Grove, Kan., by A. J. Stuchburn.

That Harry Cordes and William Critchell, Carthage, Ohio, have recently purchased the Hardware stock of C. H. Roesche & Co.

That W. H. Dent's Hardware store at Rockford, Ill., was entered by burglars on the 18th ult., who got away with about \$50 worth of Cutlery.

That A. Miller contemplates opening a Hardware store at North Milwaukee, Wis., in the near future.

That W. J. Taylor's Hardware store at Comanche, Texas, was damaged by fire on the 11th ult.

That Neely & Lyke, Lancaster, Iowa, have disposed of their stock of Hardware to Mathis & Fincher of Vinita.

That the Eagle Hardware Company's store at East Liverpool, Ohio, was burglarized on the 9th ult.; \$200 worth of goods were stolen.

That Butner & Wilson's Hardware store at Lebanon, Ind., was robbed on the 18th ult.

New Peerless Ice Cream Freezer.

Peerless Freezer Company, 28-38 East Ninth street, Cincinnati, Ohio, J. C. McCarty & Co., 97 Chambers street, New York, agents, have improved their freezers as represented herewith. Besides covering the gearings, additional leaves have been placed on the dasher frame, which, it is explained, disintegrates the cream more rapidly and thoroughly, and provides for the

size, that it has as many motions as are practicable, that the whole machine now requires fewer parts, is easily put together, less liable to get out of order, and that the tubs on each size of the freezer are unusually heavy.

Pray's Ice Plow.

The accompanying illustration represents an ice plow manufactured by Hamilton Pray, Clove, N. Y., for the



New Peerless Ice Cream Freezer.

better circulation of air through the same. The middle wheels, instead of being cast separately, as formerly, are now cast in one piece and in such form as to provide an automatic reservoir for receiving oil drippings. It is stated that its present form also makes the apparatus salt water or oil proof—that is, permits neither of these elements to

sale of which T. G. Ellsworth, 85 Chambers street, New York, is agent. The plow is provided with a seat and is about 4 feet 4 inches in length, with adjustable teeth and runners made of fine steel. The teeth can be taken off, sharpened and adjusted to cut as before. They are firmly fastened to the sides of cutter beams with bolts in slots, admit-



Pray's Ice Plow.

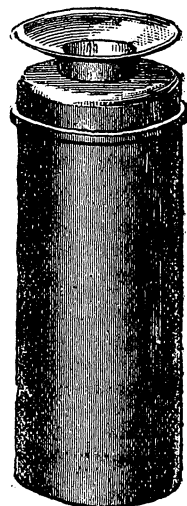
enter into the cream chamber. The standard heretofore passing through the cast tub top now engages with the middle wheel, leaving no opening whatever for salt, water or oil to get through into the cream. The manufacturers claim that the freezer is full

ting of movement up or down, and are locked with bolts running up through the cutter beams and flanges on the upper part of the runners and cutters. The flanges on the teeth and runners, with bolts through them, lock the teeth and runners to their place. The for-

ward flange on the cutters fits close to the top of the cutter beams to strengthen the beams and to keep the teeth from pulling the bolt down through, thus causing the teeth to cut too fast, which they would do if not prevented by flanges. The points of the teeth are tempered and sharpened, and the plow is fitted with flat bottom U-shaped runners to steady the plow in cross plowing in very cold weather when the ice is brittle. It is remarked that the plow is made very strong, each part strengthened to stand almost any strain. The advantages claimed for the plow by the manufacturers are as follows: That the plow having a seat, the extra weight of the rider holds the plow to its work and allows the horse to be hitched much closer to the plow, so that ice can be cut to the edge of the pond; that it only requires one person to operate the plow; that the draft back of the runners obviates the necessity of a leader or rider; that the plow has adjustable teeth; that it turns easily at the end of the row; that when properly adjusted the plow will cut at a regular depth at all times with a steady and uniform pull; that it will mark the field first and afterward do deep plowing without any change; that it will do good work with the grooves full of water, and that it is comparatively low in price. A six tooth plow of the same style is also made.

The S. & P. Milk Can.

The Stuart & Peterson Company, Burlington, N. J., have just brought out the milk can shown in the accom-



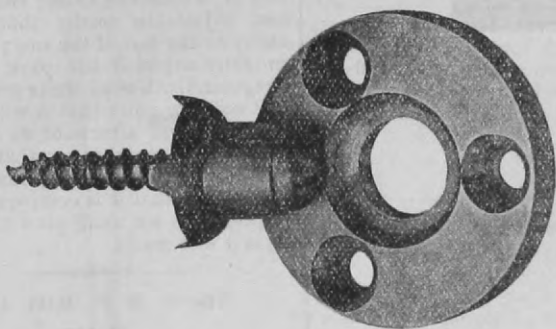
The S. & P. Milk Can.

panying cut. The can is porcelain lined and has no seams, and, it is claimed, is indestructible. It is explained that repacking is avoided by the use of the can, making a great saving in ice, and that unpleasant odors so common to tin cans are overcome. It is further explained that tin cans collect filth in the seams and that the solder causes sour milk, also liability to decomposition and poison. The can is made to contain 40 quarts, with detachable top for cleaning. It is designed for use in milk depots, hotels, restaurants, eating stands, &c.

According to the latest report of the Director of the Mint there was used in the United States in the industrial arts during 1892, \$19,329,074 worth of gold and \$9,301,388 of silver.

The Standard Pattern Dowel.

The illustration herewith given represents a new pattern dowel offered by W. S. Hawker, Broad and Adria streets, Philadelphia, Pa. In use the plate is placed at random in the drag half of the pattern by boring a hole of a diameter and depth to match the plate, after which the plate is placed in the hole and the pin dropped in position in the plate, without the screw, however. The small sharp points on the base of the pin now project slightly above the surface of the parting. On the points the cope half of the pattern is now placed in position and matched around the edges, after which it is lightly tapped with a mallet, thus embedding the points in the cope half of the pattern. The cope half is now taken off and the round headed screw is driven through the

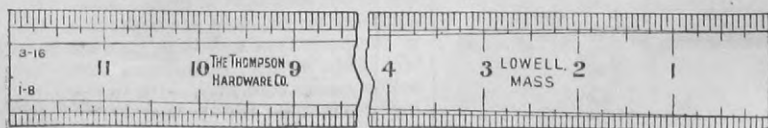


The Standard Pattern Dowel.

pin, completing the job. It is explained that by reason of the pins being in their true position within the plates when the pattern is matched there can be no binding of the parts, and that the placing of the three or more pins at the same time is greatly simplified; also that either part of the pins may be easily taken out and replaced with perfect accuracy in case of alterations, and, as they may be used repeatedly, the makers claim that they are cheaper to use than wooden dowels. The dowels described have been designed with special reference to close economy as regards placing them in patterns and the obtaining of perfect accuracy in matching partings. The manufacturer claims that the difficulty usually experienced in matching partings with various forms of metal dowels is entirely obviated in these. The dowels are made in four sizes: $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$ inch, samples of which will be sent by the maker upon application.

Improved Shrinkage Rule.

The Thompson Hardware Company, Lowell, Mass., are offering the 12-inch scale shown herewith, especially de-



Improved Shrinkage Rule.

signed for the use of pattern makers and draftsmen, or others who are interested in the shrinkage of the various metals. Upon the four corners of the scale are drawn lines parallel with the edges of the scale. Beginning at the end of the scale and at the parallel lines

are drawn supplementary lines at an angle to the parallel lines and the distance these lines are apart at the opposite end of the scale is determined by the amount of shrinkage it is desired to indicate.

Thus for iron the lines are apart $\frac{1}{4}$ inch at the end of the 12-inch scale, as iron shrinks that amount per foot. For brass the lines are $\frac{3}{16}$ inch apart. For iron and brass combined $\frac{5}{16}$ inch and for a double brass shrinkage $\frac{3}{8}$ inch, &c. Therefore, to find the shrinkage for any amount, say 10 inches, it is only necessary to add to the standard measurement the distance the lines are apart at the 10-inch graduation. This method, while combining four different shrinkage rules in one, in no way interferes with the use of the scale for standard measurements. It is explained that in making patterns for

castings it is necessary to allow for the shrinkage of the particular metal or composition used in making the casting, and if the casting is to be for a metal pattern from which other castings (possibly of a different metal) are to be made it is necessary to estimate not only the shrinkage of the final product but also the shrinkage for the metal pattern. It has heretofore been customary to make use of arbitrary rules so graduated that the divisions exceeded the standard divisions in proportion as it was necessary to compensate for the shrinkage of the metal or metals used. This, of course, necessitates the employment of a large number of scales of different dimensions. It is also customary for draftsmen to estimate for shrinkage by allowing a fractional part of an inch for each inch of measurement, according to the metal used, both of which it is the object of this invention to avoid. The rules are finely graduated and are warranted accurate by the manufacturers.

Columbia Washing Machine.

The Columbia washing machine, illustrated herewith, is put upon the market by the Richmond Cedar Works,

rugated on the inside of the machine, and, it is stated, the corrugations are so evenly tapered off where the bottom joins the side of the tub that no cracks are left for any fabric to catch in, nor



Columbia Washing Machine.

in which dirt may collect. The point is made that the bottom is in the large end, to prevent clothes from wedging.

Record Hinge Cover Square Boxed Can.

We show in the accompanying illustration a new 5-gallon hinge cover can with Record's screw spout and seal, which is being put on the market by the Record Mfg. Company, Conneaut, Ohio. The screw on the can is $1\frac{1}{2}$



Record Hinge Cover Square Boxed Can.

inches, with a vented spout on the cap, which is lined with a gasket. The firm also furnish with this their patent seal. When the can is filled for shipment the seal with the rubber gasket, it is said, completely locks the screw, so that the contents are secure. When it arrives at its destination the seal is taken out, and the can being provided with a vented spout screw, the contents may be easily poured out.

Richmond, Va. The washer is made of selected Virginia white cedar as best adapted for resisting the action of water, and is provided with heavy castings, all castings, hoops and trimmings galvanized to avoid rust, which stains clothes. The bottom and sides are cor-

Improvements in Detachable Sprockets and Cranks.

The Indiana Bicycle Company, Indianapolis, Ind., are introducing improvements in the way of detachable sprock-

whole operation consuming less than one minute. It is further remarked that the rear sprocket is put on by exactly the same device and is just as easily detached and replaced as the front. In Fig. 2 the front sprocket, keyless crank

and drawn up tight, the head being countersunk into the butt of the crank, making it flush with the side. It is explained that by doing away with the crank key and fitting the machine with a keyless crank, all possibility of riders' trousers catching has been removed, and also reduces the liability of loose cranks to a minimum.

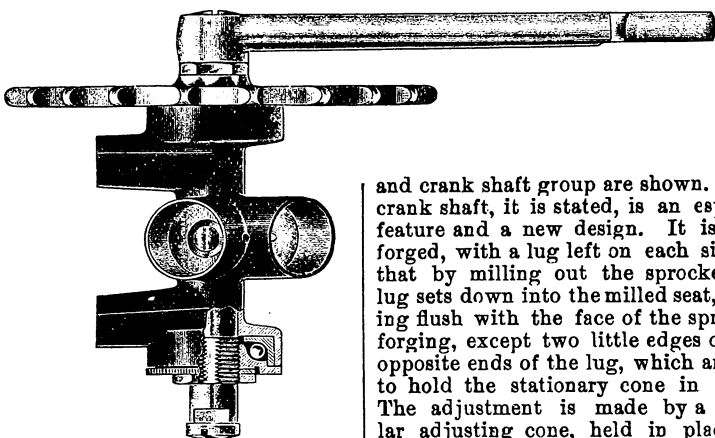


Fig. 1.—Crank Hanger, New Keyless Crank and Front Sprocket.

ets and cranks on their 1894 Waverley machines, as represented in the accompanying cuts. The view of the crank hanger, Fig. 1, shows the new keyless crank and front sprocket. The sprock-

and crank shaft group are shown. The crank shaft, it is stated, is an especial feature and a new design. It is drop forged, with a lug left on each side so that by milling out the sprocket the lug sets down into the milled seat, coming flush with the face of the sprocket forging, except two little edges on the opposite ends of the lug, which are left to hold the stationary cone in place. The adjustment is made by a regular adjusting cone, held in place by a lock washer having two flat surfaces to prevent its turning. One face of the washer is knurled and fits into

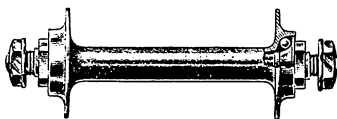


Fig. 4.—Front Hub, Showing Axle and Ball Bearing Complete.

corresponding knurls on the inside of the adjustable cone, so that when it is set up against the cone by the lock nut, it is impossible for it to be loosened or turned until the nut is unlocked. By using this device the tread of their machine has been reduced to $5\frac{1}{2}$ inches, which the makers remark is unusually narrow for a road machine. The point is made that this is an important feature, as it is a well known fact that the narrower the tread can be made the faster the machine may be ridden, and that racing men put great stress on this point; and that hand made racers that are put up for special track use are invariably brought down to a $5\frac{1}{2}$ or $5\frac{3}{4}$ inch tread. Fig. 3 represents the rear hub, showing ball bearing, tool steel bushing adjusting cone and detachable rear sprocket. In Fig. 4 the front hub axle and ball bearing are shown complete. The method of making the keyless crank, shown in Figs. 1 and 2, is explained as follows: The shaft is slightly tapered at the bearing down to the square seat, which is also tapered. The crank is carefully reamed out so that when it is pressed

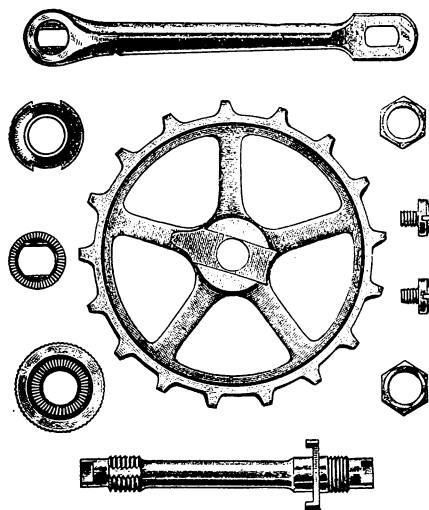


Fig. 2.—Front Sprocket, Keyless Crank and Crank Shaft Group.

ets are referred to as simple, ingeniously constructed and easily detached. The chief advantage is the ease with which they may be removed when a change of gear is desired. This is accomplished,

into the seat it will be absolutely tight, preventing the possibility of its working loose after being pressed up to its place on the tapered seat; the crank is securely held by a lock screw which is inserted into the end of the crank shaft

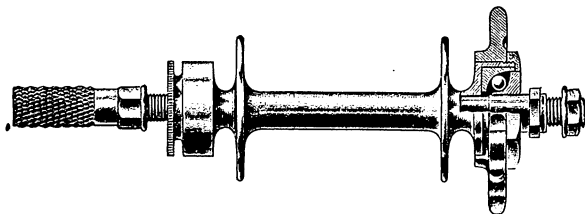


Fig. 3.—Rear Hub, Ball Bearing, Tool Steel Bushing Adjusting Cone and Detachable Rear Sprocket.

it is explained, by taking off the crank and loosening the lock nut; the sprocket may be slipped off and replaced by another having the desired number of teeth, all without disturbing the bearings or removing the crank shaft, the

Improved Victor Wagon Jack.

Covert's Saddlery Works, Farmer, N. Y., have made improvements in their Victor wagon jack, as shown herewith.

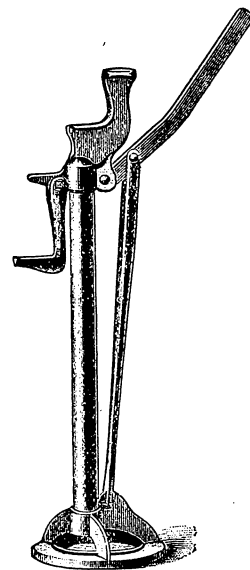


Fig. 1.—Improved Victor Wagon Jack.

It is remarked that the improvement relates to an extra catch, or step, whereby it will admit of raising a carriage or wagon having very low wheels.

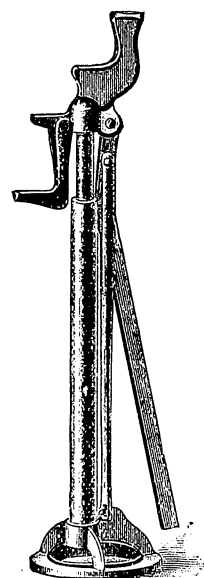
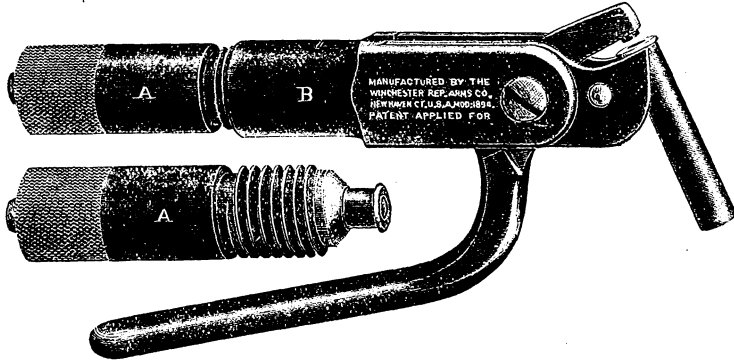


Fig. 2.—Position of Jack when Load is Raised.

In place of two fulcrum bars only one is used, and instead of the same being fastened to the base with a bolt or rivet the principle of a loose joint hinge is applied. Other minor features in the construction have been changed to lessen the cost to manufacturers, thereby reducing the price to the trade.

Winchester Model 1894 Reloading Tool.

Winchester Repeating Arms Company, New Haven, Conn., are introducing a reloading tool, as herewith illustrated. By the use of the tool a shell is reloaded in the following manner: A plug accompanies the outfit to knock out the primer, and a projection at the base of the die A is made, upon which to open the mouth of the shell.

*Winchester Model 1894 Reloading Tool.*

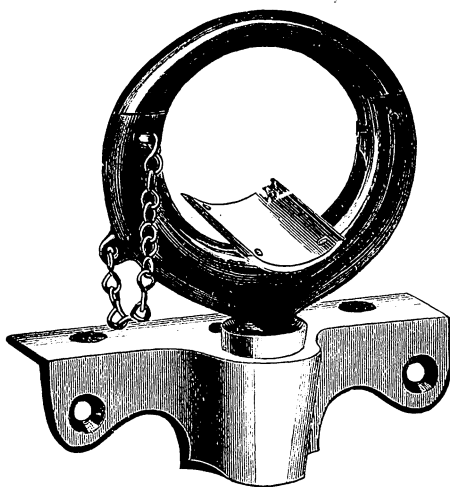
The primer is then inserted by putting the shell into the fork at the right hand end of the cut and using the lever, by which the primer will be pinched into the shell. A measure accompanies the outfit, giving the exact quantity of powder. This is rattled down into the shell and the bullet is inserted by hand. When thus assembled the cartridge is put into the die A and the die is screwed into the frame B as far as it will readily go. By the strong lever a small motion—not more than $\frac{3}{16}$ inch—is imparted to the slide. A motion of the lever toward the die will force the cartridge into the die through a short distance. The backward motion of the lever loosens the cartridge in the die and withdraws it partially. The die can then be screwed up through a part of one turn. The repeated motion of the lever and the continued screwing up of the die, it is stated, brings the cartridge its full length into the die, inserts the bullet to

the reverse motion—that is, by lifting the handle of the lever away from the die—the slide is lifted, and the cartridge, by means of the extractor, is drawn a slight distance out of the die. When the handle is returned to the die the latter can be unscrewed a corresponding distance. Another motion of the lever draws the cartridge still further out of the die, and with a few motions it becomes so loosened in the die that the latter may be easily unscrewed. As soon as the cartridge is

loosened in the die the extractor looses its grip and the die and cartridge are taken from the frame together. The point is made that this tool, new in principle, permits, with the use of little force, the most exact reloading, including the resizing of the shell. The tool weighs 2 pounds, and will be made to load the following sizes of ammunition: .32-40, .38-55, .33-56, .40-65, .40-82, .45-70-405, .45-70-500, .45-90, and .50-110 express.

The Spaulding and Eaton Feathering Row Lock.

The Songo River Row Lock Company, Harrison, Maine, are introducing the row lock illustrated herewith. The row lock is of the closed pattern, and opens at the top with a hinged joint to admit the oar. The oar is held in the ring by a pin, working in a slot in the bottom part of the row lock. The point

*The Spaulding and Eaton Feathering Row Lock.*

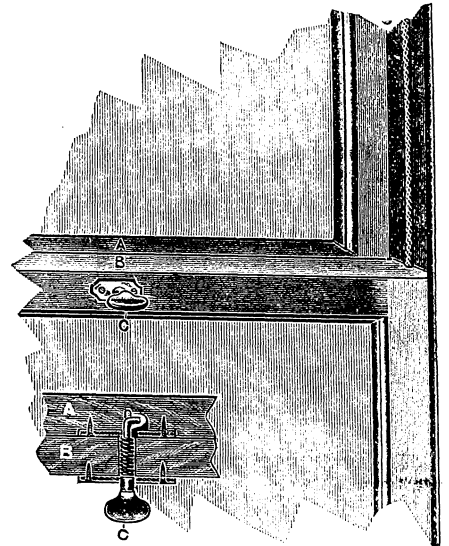
the right distance, crimps the cartridge around the bullet and reduces the shell to its original size, so that it will go freely into the gun. It is remarked that with the tool it will be found possible to easily reload the largest cartridges, compressing the powder, putting the bullet to place, and reducing the shell on the outside to its original form. By

is made that the slot is so arranged that when rowing the oar is held in its proper position, giving ample room for feathering. The movable part of the row lock is set in a side socket, attached to the boat by a slotted shank, which can only be taken out when the oar is shipped, and the movable part of the lock may then be left on the oar if de-

sired. The manufacturers state that it is impossible to lose an oar or any part of the lock; that the oar will not unship in rough water, but can be shipped in three seconds; that in the roughest water the boat will not be liable to upset, as the oars can be so placed and held that they will extend flat wise on the water in their proper position, and be held firmly in their place, and that as the oars are held in the proper position for rowing a child can easily row the boat.

The New Idea Sash Lock.

Ernst & Wagener, Rochester, N. Y., are putting the sash lock on the market shown herewith. It consists of a catch bar of steel wire, passing through the meeting rail of the lower sash, the hook on the end of which works over

*The New Idea Sash Lock.*

an incline in the meeting rail of the upper sash. By turning the knob the sashes are thus drawn firmly together, preventing rattling. When the window is open the spring holds the catch bar back in a recess to prevent the sash being defaced or the lock broken. The manufacturers claim that the lock is simple and durable; that it is burglar proof; that it is positive, and that by its use all obstructions on the top of the rails are avoided, allowing them to be easily kept clean. The locks are furnished in 20 different finishes, and extra finishes will be made to order.

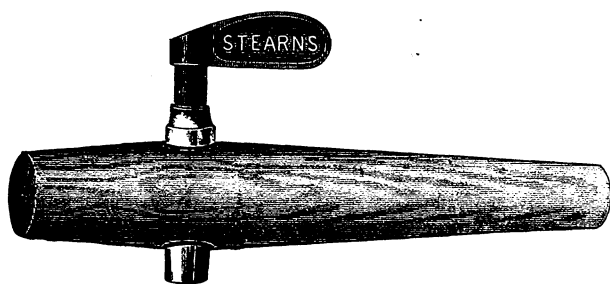
Silver Cream and Red Star Powder.

J. A. Wright & Co., Keene, N. H., are putting up cleaning preparations for household use, known as Silver Cream and Red Star cleaning powder. These goods are not a powder, it is stated, that is produced by grinding or other mechanical means, but is dug from a deposit and cleansed from the small amount of vegetable substance that has worked into the natural bed. The preparations are designed for cleaning gold, silver, plated ware, jewelry, diamonds, mirrors, windows, tin, copper, brass, britannia, zinc, nickel, &c. The red star cleaning powder is put up in packages, each containing 16 cubic inches of solid powder. Silver cream is prepared in three forms; in a liquid or cream, put up in 3-ounce, $\frac{1}{2}$ -pint, pint and quart bottles ready for use. Also in a solid or soap, put up in fancy tin boxes, two sizes. To save the expense of bottles, packing, transportation, breakage,

&c., it is put up in a concentrated powder in boxes to be converted into liquid or cream by the customer, by putting the powder into a bottle or jar and adding water. The manufacturers claim

Victor Chopping and Mincing Knife.

The cut here shown represents the Victor chopping and mincing knife, being offered by the Clauss Shear Com-



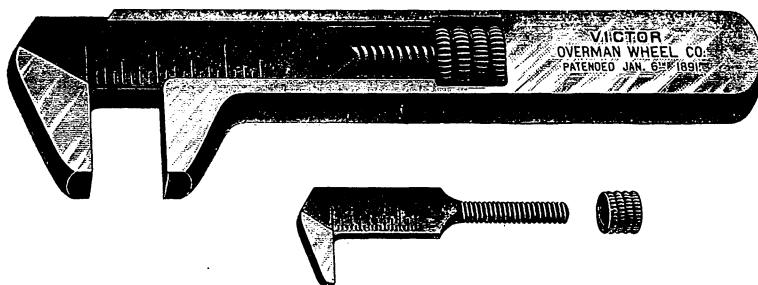
Stearns Faucet.

that the goods contain no grit, acid or poisons, and that they will keep silver bright as new without scratching or injuring it in the least.

Stearns Faucet.

The accompanying cut shows a faucet put on the market by E. C. Stearns &

pany, Fremont, Ohio. The blades are of such a quality of steel as to hold an edge, and may be sharpened with a file when necessary. The position of the handle, it is stated, is such as to make chopping easy, the knife doing a large amount of work in proportion to the labor expended. It will cut fruit and potatoes into neat pieces for frying and preserving; one stroke giving, if de-



The Victor Wrench.

Co., Syracuse, N. Y. It is described as being made of selected thoroughly seasoned maple, highly finished. The spigot is of a special non-corrosive metal of their own mixture, with iron shank and handle. The hole through which the spigot passes is lined with leather, and the faucet is opened or closed by a quarter turn. The faucet is made in the following lengths: 7, 8,

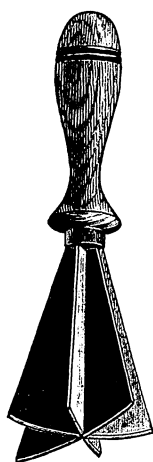
sired, six equal pieces of fruit or potatoes. It is also recommended for making steak tender, by cutting the fiber and not bruising it. The manufacturers claim that the knife is strong, simple, cheap and durable, and that it is easy to clean and sharpen.

'94 Victor Wrench.

Overman Wheel Company, Chicopee Falls, Mass., are putting the '94 Victor wrench on the market, as represented in the cut herewith shown. It is all of forged steel, hardened and nicked, and is scaled to fractional parts of the inch. The manufacturers remark that it is lighter than their former wrench, and that it possesses great strength.

Houchin's Gas Heater and Attachments.

The accompanying cuts represent the Volunteer gas heater and attachments offered by Thomas W. Houchin, 67-69 Park Place, New York. The heater, as shown in Figs. 1 and 4, is referred to as a safe and reliable atmospheric gas heater, always ready for use, requiring no rubber tube or adjusting, and as fitting any ordinary gas burner. It is stated that its combustion is perfect, and consequently there is no smell from unconsumed gas, and that it will not blacken or smoke any article that may be placed over it. Fig. 2 shows an attachment for holding curling irons for heating, and which is placed on the burner as in Fig. 1.



Victor Chopping and Mincing Knife.

9, 10, 12, 15, 18 and 20 inch, the 18 and 20 inch faucets being extra heavy, with iron bound heads. All sizes are packed one dozen in a box, and the 7, 8, 9 and 10 inch, 12 dozen in a case. The 12, 15, 18 and 20 inch are packed six dozen in a case.

Fig. 3 shows the boiling attachment, which consists of a wheel or stand, on which may be placed any vessel for

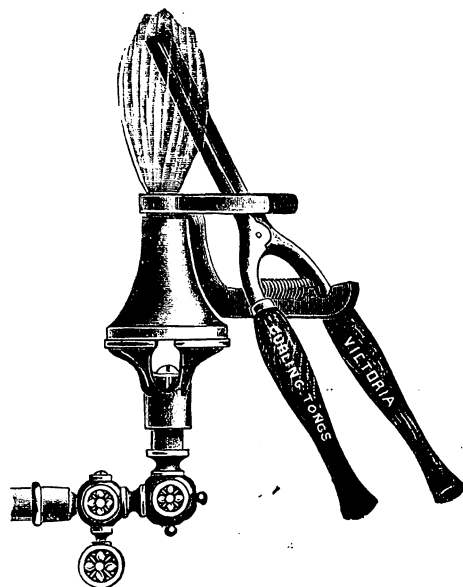


Fig. 1.—Houchin's Volunteer Gas Heater.

boiling water or warming children's food, warming glue, making starch,

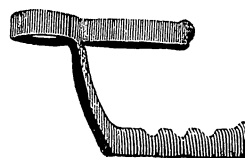


Fig. 2.—Curling Iron Attachment.

&c. In use this is placed on the heater instead of the curling iron heater, as in

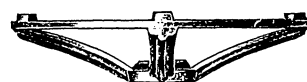


Fig. 3.—Boiling Attachment.

Fig. 4. It is stated that with this children's food may be warmed in 30

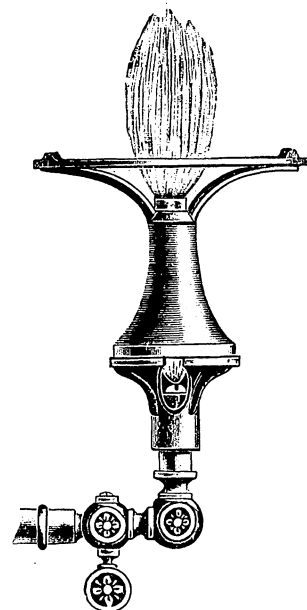


Fig. 4.—Heater with Boiling Attachment.

seconds, or a quart of water may be boiled in three minutes.

Current Hardware Prices.

JANUARY 3, 1894.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&100 to 50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

Adjusters, Blind—

Domestic..... doz \$3.00, 83¢@33¢&10¢
Excelsior..... doz \$10.00..... 50&10&23
North's..... list net @ 10¢
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—

American—

Eagle Anvils, 15 lb..... 15@15&5¢
Horse shoe brand, Wrought..... 11@11¢
Moore & Barnes Mfg. Co..... 33¢

Imported—

Armitage Mouse Hole..... 10¢@11¢
S. & H., machine finished..... 10¢@11¢
Trenton..... 10¢@11¢
Wilkinson's..... 10¢@11¢
Peter Wright's..... 11¢@11¢

Anvil Vise and Drill—

Allen Anvil and Vise \$3.00..... 40&10¢
Cheney Anvil and Vise..... 25¢
Millers Falls Co., \$18.00..... 20¢
Star..... 45&5¢

Apple Parers—See Parers

Apple, &c.

Augers and Bits—

Boring Machine Augers..... 70¢@70&10¢
Car Bits, 12 in. twist..... 50¢
Common Augers and Bits..... 70¢@70&10¢
Cincinnati Bell-Hangers' Bits..... 80&10¢
Forester Pat. Auger Bits..... 15¢
Jennings' Pattern Car Bits..... 40¢
Jennings' Pattern Auger Bits..... 60¢
C. E. Jennings & Co., No. 10, extension lip..... 40¢
C. E. Jennings & Co., No. 30..... 60¢
C. E. Jennings & Co., Auger Bits, set 32¢ quarters, No. 5, \$5; No. 30, \$3.50..... 25¢
Russell Jennings' Augers and Bits..... 25&10¢
Lewis' Patent Single twist..... 45¢
L'Hommedieu Car Bits..... 15&10¢
Pugh's Black..... 20¢
Pugh's Jennings Pattern..... 30¢
Snell's Bits..... 60&5¢

Bit Stock Drills—

Cleveland..... 50&10&5¢
Cincinnati, for wood..... 30&10¢
Cincinnati, for metal..... 45&10¢
Morse twist Drills..... 50&10&5¢
Standard..... 50&10&5¢
Syracuse, for metal..... 50&10¢
Syracuse, for wood (wood list)..... 30&10&5¢

Expansive Bits—

Clark's small, 18 in. large, \$26.35@35&10¢
Ives' No. 4, doz. \$80..... 40¢
Steele's, No. 1, \$26; No. 2, \$18..... 35&40¢
Stearns' No. 2, \$48..... 20¢
Swan's..... 40¢

Gimlet Bits—

Bee..... 25¢@25&5¢
Common..... doz \$2.75@3.25
Diamond..... doz \$1.25..... 40&10¢
Double Cut:
Shepardson's..... 45¢@45&10¢
Ct. Valley Mfg. Co..... 30&10¢
Hartwell's..... gr. \$10.00..... 40&10¢
Douglass'..... 40&10¢
Ives..... 60¢@60&10¢

Hollow Augers—

Bonney's Adjustable, doz \$48..... 50¢
Cincinnati Adjustable..... 25&10¢
Cincinnati Standard..... 25&10¢
Douglass'..... 33¢@33¢&10¢
French, Swift & Co. (Beecher)..... 33¢@33¢&10¢

Ship Augers and Bits—

Ives..... 33¢@33¢&10¢
Ives' Expansive, each \$4.50..... 50&5¢
Stearns'..... 20&10¢
Universal Expansive, each \$4.50..... 20¢
Wood's..... 25¢@25&10¢

Ship Augers and Bits—

L'Hommedieu's..... 15&10¢@15&10&5¢
Snell's..... 25¢@25&10¢
Snell's ship Auger Pattern Car Bits..... 15&10¢@15&10&5¢
Watrous'..... 25¢@25&10¢

Awl Haftes—See Haftes, Awl.

Awls—

Awls, sewing, Common..... gr. 85¢@90¢
Awls, should. Peg..... gr. \$1.50@1.55
Awls, Pat. Peg..... gr. 85¢@88¢
Awls, shouldered Brad..... gr. \$1.30@1.40
Awls, Handled Brad..... gr. \$2.50@3.00
Awls, Handled Scratch..... gr. \$4.00@4.50
Awls Socket Scratch..... doz. \$1.10@1.20

Awl and Tool Sets—See

Awls, Awl and Tool.

Axes—

First quality, best brands..... \$7.50
First qual., other brands..... 7.00
Second quality..... 5.50 6.00

Axle Grease—See Grease, Axle.

Axles—

No. 1..... 3¼¢@4¢; 4¼¢@5¢
Nos. 7 to 13..... 7¢
Nos. 15 to 23..... 47¢
Nos. 19 to 22..... 70¢
Concord Axles, loose collar..... 3¢ cash
Concord Axles, solid collar..... 5¢@6¢

Bag Holders—See Holders, Bag.

Balances—

Spring Balances..... 40¢
No. 2000 20 30
Chatillon, doz..... \$0.80 0.95 1.75 net
Chatillon Straight Balances..... 40¢
Chatillon Circular Balances..... 50&10¢

Barb Wire—See Wire, Barb.

Bars—

Crow—

Cast Steel..... doz \$3.40
Iron, Steel Points..... doz \$3.40

Basins, Wash—

Standard Fiberglass, No. 1, 10½ in., \$1.80;
12 in., \$2.00; 15¼ in., \$2.50; 15 in., \$3.00.

Beams, Scale—

Scale Beams, list Jan. 12, '82..... 50&10&5¢
Chatillon's No. 1..... 40¢
Chatillon's No. 2..... 50¢
Custer's..... 33¢

Beaters—

Egg—

Bryant's..... gr. \$14.00
Double (H. & R. Mfg. Co.), gr. No. 0 \$12.00; No. 1, \$15.00; No. 2..... \$38.00
Dover..... doz \$1.00@1.20
Dover (Standard Co.)..... doz \$1.00
Duplex (Standard Co.)..... doz \$1.00
Duplex Extra Heavy (Standard Co.)..... doz \$3.50
Easy (H. & R. Mfg. Co.)..... gr. \$12.00
Improved Acme (H. & R. Mfg. Co.)..... gr. \$9.00
Silver & Co..... gr. \$4.50
Spiral..... gr. \$4.25@4.50
Triple (H. & R. Mfg. Co.)..... gr. \$16.50

Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;
No. 2, \$2..... 20¢

Bells—

Cow—

Common Wrought..... 60&10¢
Dodge, Genuine Kentucky..... 70¢@70&10¢
Kentucky Durham..... 70&10¢
Kentucky, Sargent's list..... 70&10¢
Kentucky, "Star"..... 20&10¢
Texas Star..... 50&10¢@50&10&5¢
Western, Sargent's list..... 70&10¢

Door—

Crank, Brooks'..... 50&10&2¢
Crank, Cone's..... 10¢
Crank, Connel's..... 20&10¢
Gong, Abner's..... 40&10¢
Gong, Barton's..... 40&10¢
Gong, Yankee..... 45&10¢
Lever, R. & E. Mfg. Co.'s..... 50&10&2¢
Lever, Sargent's..... 60&10¢
Lever, Taylor's Bronzed or Plated..... net
Lever, Taylor's Japanned..... 25&10¢
Pull, Brook's..... 50&10&2¢

Electric—

Bigelow & Dowse..... 20¢
Wollensak's..... 20¢

Hand—

Extra Heavy Brass..... 70¢
Light Brass..... 70&10¢@70&10&5¢
Silver Chime..... 33¢@33¢
White..... 70¢
Globe Cone's Patent..... 25&10&5¢

Miscellaneous

Call..... 45¢@50¢
Farm Bells..... doz \$3.40
Steel Alloy Church and School Bells..... 40¢

Bellows—

Blacksmiths'..... 00&10&5¢@00&10&10¢
Hand Bellows..... 40&10¢@50¢
Molders'..... 40&10¢@50¢

Belting, Rubber—

Common Standard..... 75¢@75&10¢
Extra..... 80¢@80&10¢
Standard..... 70¢@70&10¢
N. Y. B. & P. Co., Carbon..... 60¢@60&5¢
N. Y. B. & P. Co., Diamond..... 60¢@60&5¢
N. Y. B. & P. Co., Para..... 40¢@40&5¢

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender..... 15¢
Green River Tire Benders and Upsetters..... 20¢
Stoddard's Lightning Tire Upsetters..... 15¢

Bits—

Auger, Gimlet, Bit Stock Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Cleveland Block Co., Mal. Iron..... 60¢@60&10¢
Moore's Novelty, Mal. Iron..... 50¢
Sure Grip Steel Tackle Blocks..... 25¢
See also Machines, Hoisting.

Boils—

Carriage, Machine, &c.—

Com. list June 10, '84..... 80&10¢
Genuine Eagle, Norway, list Oct. '84..... 80&5¢@80&10¢
Eagle, Norway, list Oct. '84..... 80&5¢@80&10¢
Phil. Norway, list Oct. 7, '84..... 80¢
R. B. & V., old list..... 70¢
Bolt Ends, list Jan. 1, 1890..... 80&10¢@80&20¢
Machine, list Jan. 1, 1890..... 80&10¢@80&20¢

Door and Shutter—

Cast Iron Barrel, Square, &c..... 70&10¢
Cast Iron Chain (Sargent's list)..... 65&10¢
Cast Iron Shutter Bolts..... 70&10¢
Ives' Patent Door Bolts..... 60&10¢@60&10&5¢
Wrought Barrel..... 70&10¢@75¢
W. T. B. K. Flush, Common..... 55&10¢
W. T. Shutter, Brass Knob..... 50¢@50&5¢
W. T. Shutter, Sargent's list..... 60&10¢
W. T. Shutter, all iron, Stanley's..... 60&10¢@60&10&10¢
Wrought Square..... 70&10¢@75¢
W. T. Sunk Flush, Sargent's list..... 60&10¢
W. T. Sunk Flush, Stanley's list..... 60&10¢@60&10&5¢

Stove and Plow—

Plow..... 60&10¢@60&10&10¢
Stove..... 60&10¢@60&10&10¢
R. B. & W., Plow..... 55¢

Tire—

Common, list Feb. 28, '83..... 65¢@65&5¢
American Screw Company
Norway, Phila., list Oct. 16, '84..... 75¢
Eagle, Phila., list Oct. 16, '84..... 80¢
Philadelphia, list Oct. 16, '84..... 80¢
Bay State, list Feb. 28, '83..... 65¢
Port Chester Bolt and Nut Company
Empire list Feb. 28, '83..... 65¢
Keystone, Philadelphia, list Oct. '84..... 80¢
Norway, Phila., list Oct. '84..... 75¢
R. B. & W., Philadelphia, list Oct. 16, '84..... 80¢

Borers, Tap—

Common and Ring..... 20&10¢
Clark's..... 33¢@33¢
Enterprise Mfg. Co..... 20¢
Ives' Tap Borers..... 33¢@33¢

Borax—

Per lb..... 9¢@10¢

Boring Machines—See Ma-

chine, Boring.

Box Pins—See Pins, Box.

Boxes, Wagon—

Per doz..... 25¢

Boxes, Miter.

Spilker's Excelsior, 3 in. \$7.50, 4 in. \$8.50, 5 in. \$13.00, 6 in. \$15.00..... 20¢

Braces—

American Bit Brace and Tool Co.
Nos. 11, 21, 27..... 80&10¢
Nos. 13, 23, 27..... 70&10¢
Nos. 22, 23, 25..... 60&10&5¢
Nos. 13, 25, 36, 37..... 70&10&5¢
Amidon's
Barker's Imp'd Platin..... 75¢@80¢
Barker's Imp. Nickeled..... 65¢@70¢
Barker's Imp. Nickel..... 75¢@80¢
Eclipse Ratchet..... 60¢
Globe Jawed..... 40¢@40&10¢
Corner Brace..... 40¢@40&10¢
Universal, 8 in. \$2.10; 10 in. \$2.25
Buffalo Ball..... \$1.10@1.15
Barber..... 60&10¢

Barlow's
Nos. 25, 27 and 30..... 50&10¢@60&5¢
Nos. 117, 118, 119..... 70¢@70&5¢
Common Ball, American..... \$1.00@1.10
Davis Patent..... 60&10¢
Fray's Genuine Spofford's..... 50&5¢@50&10¢
Fray's Nos. 70 to 120, 81 to 123. 20¢ to 41¢
50¢@10¢

Ives' New Haven Novelty..... 70¢@70&5¢
New Haven Ratchet..... 60¢@60&10¢
Barber Ratchet..... 60¢@60&10¢
Barber's..... 60¢@5¢
Spofford..... 60¢@60&10¢
P. W. Co., Peck's Patent..... 60¢
Rox & Johnson..... 60¢
Saxton's
Barker's Imp. Polished..... 75¢@80¢
Barker's Imp. Nickel..... 65¢@70¢
Ratchet, Polished..... 60¢@60&10¢
Ratchet, Nickel..... 40¢@40&10¢
Buffalo Ball..... net, \$1.10@1.15

Brackets—

Shell, fancy
Sargent's list..... 70¢@70&10¢
Other makes at a wide range of prices.
Shell, plain
Regular, list..... 65¢@70¢
Sargent's list..... 60¢@70&10¢
Bradley Shelf Brackets..... 70¢@10¢

Bright Wire Goods—See

Wire.

Brollers—

Henis's Self-Inch..... 9 10 9x11
Basting..... Per doz. \$4.50 5.50 6.50
Modern Odorous..... doz. \$12, 50¢
New Haven..... 50¢
Queen City..... 33¢
Wire Goods Co..... 65¢@10¢

Buckets, Well—

Galvanized—
Helwig's Flat Iron Band..... \$3.75
Helwig's Wired Top..... doz \$4.00
Hill's..... doz. 12 qt. \$4.25; 14 qt. \$5.25
Iron Clad..... doz. 14 qt. \$4.25@4.50

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See

Cleavers, Butchers.

Butts—

Brass—
Cast Brass, Fast..... 33¢@33¢
Cast Brass, Loose Joint..... 33¢@33¢
Cast Brass, Tiebout's..... 50¢
Wrought Brass..... 80¢@80&10¢

Cast Iron—

Fast Joint, Broad..... 50&10&60¢
Fast Joint, Narrow..... 50&10&5¢@60¢
Loose Joint..... 50&10&5¢@60¢
Loose Joint, Japanned..... 75&5¢
Loose Joint, Jap. with Acorns..... 75&10¢
Loose Pin, Acorns..... 75&10¢
Loose Pin, Acorns, Japanned..... 75&10¢
Loose Pin, Acorns, Japanned, &c.
Plated Tip..... 50¢@50&10¢
Mayer's Hinges..... 50¢@50&10¢
Parliament Butts..... 50¢@50&10¢

Wrought Steel—

Fast Joint, Broad..... 50&10&60¢
Fast Joint, Narrow..... 50&10&5¢@60¢
Fast Joint, Lt. Narrow..... 50¢@50&10¢
Inside Blind, Light..... 40¢@40&10¢
Inside Blind, Regular..... 40¢@40&10¢
Loose Joint, Broad..... 50¢@50&10¢
Loose Pin..... 50¢@50&10¢
Table Butts, Back Flaps, &c..... 50¢@50&10¢
Bronzed Wrought Butts..... 50¢@50&10¢

Cages, Bird—

Hendryx, Brass or Enameled..... 50&10¢
Hendryx, Wood..... 40&10¢

Calipers—See Compasses.

Calks Toe—

Burke's, One Prong, Blunt..... 5¢@5¢
Burke's, One Prong, Sharp..... 6¢@7¢
Burke's, Two Prong, Blunt..... 7¢@8¢
Gaudier, One Prong, Blunt..... 5¢@5¢

Can Openers—See Openers, Can.

Cans, Milk—

S. S. & Co.: 5-gal., \$3.00; 8-gal., \$4.40;
10-gal., \$4.75 each..... 40&10¢

Cans, Oil—

Galvanized Blue Band, 1 gal., doz. \$2.25
Galvanized Blue Band, 5 gal., Tip-Top, doz. \$12.00
Galvanized Blue Band, 5 gal. Faucet, doz. \$8.00
Glass Oil, Friend..... doz. \$2.75

Caps—

Hicks & Goldmark's and Union Metallic Cartridge Co..... \$1.00
Eley's E. B..... 50¢@50&5¢
Eley's D Waterproof, Central Fire..... \$1.50
E. B. Grand Edge, Cent. Fire, 1-10's..... 47¢@50¢

E. B. Trimmed Edge, 1-10's..... 47¢@50¢
F. L. Waterproof, 1-10's..... 35¢@37¢
G. D..... 27¢@30¢
Musket, Waterproof, 1-10's..... 50¢@53¢
S. B. Genuine Imported..... 45¢

Primers—

Berdan Primers..... 25¢
B. L. Caps (Sturtevant Shells) \$1.00..... 25¢
All other Primers, \$1.20..... 25¢

Cards—

Watson's Cotton, Wool, Horse and File, list January 28, 1891..... 25¢

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—

B. B. Caps, Con. Ball, Swgd., \$2.00..... 25¢
B. B. Caps, Round Ball, \$1.75..... 25¢
Blank Cartridges, except 22 and 32 cal., additional 10¢ to above discounts.
Blank Cartridges, 22 cal., \$1.75..... 25¢
Blank Cartridges, 32 cal., \$3.50..... 25¢
Cent. Fire, Military and Sporting..... 15&5¢@25¢

Cent. Fire, Pistol and Rifle..... 25&5¢@25¢
Primed Shells and Bullets..... 15&5¢@25¢
Rim Fire Cartridges..... 15&5¢@25¢
Rim Fire Military..... 15&5¢@25¢

Carpet Sweepers—

See Sweepers, Carpet.

Casters—

Bed..... 55¢@55&10¢
Plate..... 80¢@80&10¢
Shallow Socket..... 60¢@60&10¢

Chalk Lines—See Lines.**Checks, Door—**

Unity	50%
Chisels—	
Socket Framing and Firmer	
New Haven	
Ohio Tool Co.	75&10@75&10&10%
P. S. & W.	
Wetherby	
Buck Bros.	30%
Douglass	75&10@75&10%
Merrill	60&10@60&10&5%
L. & I. J. White	30@30&5%
Tanged and Miscellaneous	
Buck Bros.	30%
Butchers	\$4.75@5.00 to 2
Cold Chisels, fair quality, # 14	14@16
Spear & Jacksons	\$5 to 2
Tanged Firmers	50@50&10%

Chucks—

Beach Pat.	each, \$8.00	20%
Danbury	each, \$6.00, 30@30&5%	
Graham Patent		33&4%
Morse's Adjustable, each, \$7.00, 20@20&5%		
Syracuse, Balz Pat.		25%
Skinner's Patent Chucks		
Combination Lathe Chucks		33&4%
Drill Chucks		15%
Independent Lathe Chucks		40%
Universal Lathe Chucks		40%
Union Mfg. Co.		40%
Combination		40%
Independent		40%
Universal		40%
Victor		85.50, 25%

Churns—

McDermald Star Barrel Churn, each	6 gal., \$2.60; 10 gal., \$2.75; 15 gal., \$3.00; 20 gal., \$3.25.
Tiffin Union, each, 5 gal. \$3.25; 7 gal., \$3.75; 10 gal., \$4.25.	

Clamps—

Adjustable, Cincinnati	15&10%
Adjustable, Hammers	15@15&5%
Adjustable, Stearns	30@30&10%
Barnes' Machinists' Clamps	33&4%
Cabinet, Sargent's	70&10%
Carpenter's, Cincinnati	25&10%
Carriage Makers' P. S. & W.	40&10%
Carriage Makers' Sargent's	75@75&5%
Eberhard Mfg. Co.	40&5@40&10%
R. I. Tool Co.'s Wrought Iron	25%
Saw Clamps, see Vises, Saw Filers	
Stearns' Adjustable Cabinet and Corner	
Warner's	30@30&10%
Warner's	40&10@40&10&5%
Cleavers, Butchers	
Beatty's	40@40&5%
Bradley's	25@30%
Foster Bros.	30%
New Haven Edge Tool Co.'s	40%
P. S. & W.	33&4@33&4&10%
Schulte, Leach & Co.	40@40&5%
L. & I. J. White	20&5%

Clips—

Baker Axle Clips	25%
Norway, Axle, # 4 & 5-16	55&5&5%
Norway Spring Bar Clips, 5-16	60&5&5%
2d grade Norway Axle, # 4 & 5-16	55&5%
Steel Felloe Clips	# 5, 5%
Superior Axle Clips	65&5@65&5%
Wrought Iron Felloe Clips	# 5, 5%

Cloth and Netting, Wire**See Wire, &c.****Cocks, Base**

Hardware list (Globe, Kerosene, Lever	
Bibbs, Racking, &c.)	60&2@60&10

Coffee Mills—See Mills, Coffee.**Collars, Dog**

Brass, Pope & Stevens' list	40%
Chapman Mfg. Company, new list	40%
Embossed, Gilt, Pope & Stevens' list	30&10%
Leather, Pope & Stevens' list	40%
Medford Fancy Goods Co.	40&10@50%
Combs Curry	
American Curry Comb Co.	33&4@40%
Fitch's	50&10@50&10&10%
Kohler's Humane	# doz., \$1.75
Kohler's Magic Oscillating	# doz., \$2.00
Rubber, per doz.	\$10.00

Compasses, Dividers &c.

Compasses, Callipers, Dividers, 70&10@75%	
Bemis & Call Co.	
Dividers	
Callipers, Call's Patent Inside	55%
Callipers, Double	55%
Callipers, Inside or Outside	55%
Callipers, Wing	60%
Compasses	50&5%
Bxcelors	50%
Starrett's	
Combination Dividers	25%
Lock Callipers and Dividers	25%
Spring Callipers and Dividers	25&10%
Stevens & Co.'s	25&10%

Coopers' Tools

See Tools, Coopers	
Cord—Sash—	
Braided, Crown Drab and Fancy, # 1	55%
Braided, Crown White, # 1	50%
Cable Laid Italian Sash	# 1, 19@20%
Common	# 1, 8@9%
Common Russia Sash	# 1, 12@13%
Egyptian, India Hemp, Braided	25%
India Cable Laid Sash	# 1, 11@12%
Massachusetts, White	25%
Ossawa Mills—	
Braided, Giant, Drab and Fancy, # 1	10%
Braided, Giant, White, # 1	30%
Patent, good quality	# 1, 10@11%
Patent Russia Sash	# 1, 13@14%

Coopers' Tools

See Tools, Coopers	
Cord—Sash—	
Braided, Crown Drab and Fancy, # 1	55%
Braided, Crown White, # 1	50%
Cable Laid Italian Sash	# 1, 19@20%
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Coopers' Tools

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Cord—Sash—	
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Cable Laid Italian Sash	# 1, 19@20%
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Ossawa Mills—	
Braided, Giant, Drab and Fancy, # 1	10%
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Coopers' Tools

See Tools, Coopers	
Cord—Sash—	
Braided, Crown Drab and Fancy, # 1	55%
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Cable Laid Italian Sash	# 1, 19@20%
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Ossawa Mills—	
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Ossawa Mills—	
Braided, Giant, Drab and Fancy, # 1	10%
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India Cable Laid Sash	# 1, 11@12%
Massachusetts, White	25%
Ossawa Mills—	
Braided, Giant, Drab and Fancy, # 1	10%
Braided, Giant, White, # 1	30%
Patent, good quality	# 1, 10@11%
Patent Russia Sash	# 1, 13@14%

Wire Picture—**Braided or Twisted—**

80&5@80&15%	
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Corkscrews—See Screws, Cork.**Corn Knives and Cutters****See Knives, Corn.****Crackers, Nut—**

Acme	
Japanned, # gro, \$30	50%
Nickel Plated, # gro, \$30	10%
Blake's Pattern, # doz., \$2.00	10%
Table (H. & B. Mfg. Co.)	40%
Turner & Seymour Mfg. Co.	50%

Cradles—

Grain	60&2@50&5&2%
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Crayons—

White Crayons, # gross	7@8
D. M. Steward Mfg. Co.	
Metal Workers', # gross, \$2.50	25%
Railroad, # gross, 2.00	25%
Rolling Mill, # gross, 2.50	25%
Soapstone Pencils, # gross, 1.50	25%

See also Chalk.**Creamery Pails—See Pails, Creamery.****Crow Bars—See Bars, Crow.****Curry Combs—****See Combs, Curry.****Curtain Pins—****See Pins, Curtain.****Cutters—****Meat—**

Nos.	1	2	3	4	5	30%
Each	\$5	\$7	\$10	\$25	\$50	\$80
Enterprise						25%
Nos.	10	12	22	32	42	
Each	\$3	\$2.50	\$4	\$6	\$15	
Dixon's, # doz.				40@40	5%	
Nos.	1	2	3	4		

Halters—

Cover's Ad. Rope Halters.....	40&24
Cover's Ad. Web Halters.....	35&5&24
Cover's Hemp Horse and Cattle Tie.....	50&10&24
Cover's Jute Cattle Ties.....	70&10&24
Cover's Jute Horse Ties.....	70&24
Cover's Rope, 7-16 in., Jute.....	70&24
Cover's Rope, 7-16 in., Hemp.....	50&24
Cover's Rope, Jute.....	60&10&10&24
Cover's Saddlery Works Halters.....	33&4
Cover's Saddlery Works Handy Web Halters.....	33&4
Cover's Saddlery Works Horse and Cattle Ties.....	33&4

Hammers—**Handled Hammers—**

Atha Tool Co.....	
Buffalo Hammer Co.....	60&10
Humason & Beckley.....	
Verree.....	
Cheney's Claw.....	40&10
Cheney's Machinist's & Riveting.....	50&24
C. Hammond & Son.....	40&10
Magnetic Tack, Nos. 1, 2, 3, 1.25, 1.50 & 1.75.....	30&10
Maydole's, list Dec. 1, 85.....	25&10&40
Peck, Stow & Wilcox.....	35&40
Fayette R. Plumb.....	
Artisan's Choice, A. E. Nail.....	40&10
Horseshoe Turning Hammers.....	50
Regular Y. & P. A. E. Nail.....	50&10
Other Hammers.....	50&10
Nelson Tool Works.....	40&10
Sargent's.....	40&10
Warner & Nobles, new list.....	25&10

Heavy Hammers and Sledges—

3 lb and under.....	40
3 to 5 lb.....	75&10&75&10
Over 5 lb.....	85
Wilkinson's Smiths.....	10&11

Handcuffs and Leg Irons—

See Police Goods.

Handles—**ross-Cut Saw Handles—**

Atkins, new list.....	40
Champion.....	15
Ely's Perfection.....	40
Sensible.....	40
Iron, Wrought or Cast—	
Barn Door, 1/2 doz \$1.40.....	10&10
Bronze Iron Door Latches.....	70
Chest and Lifting.....	70
Door or Thumb.....	
Nos.....	
Per doz.....	1.00 1.25 1.35 1.50
Jap'd Store Door Handles—Nuts, 1.62; Plate, \$1.10; no plate, \$0.88.....	30
Roggin's Latches.....	30

Wood—

Auger, assorted.....	gr 5.00
Auger, large.....	gr 7.00
File, assorted.....	gr 2.75
Brad A.W.I.....	gr 2.00
Apple Firmer Chisel, ass'd.....	gr 6.00
Apple Firmer Chisel, large.....	gr 6.00
Hickory Firmer Chisel, ass'd.....	gr 4.50
Hickory Firmer Chisel, large.....	gr 4.50
Socket Firmer Chisel, ass'd.....	gr 3.00
Socket Firmer Chisel, large.....	gr 3.00
Hammer, Hatchet, Axe, &c.....	40&10&24
Hoe, Rake, Shovel, &c.....	60&10&24
Pat. Auger, Douglass.....	set \$1.25
Pat. Auger, Ives.....	30&10
Pat. Auger, Swan's.....	set \$1.00
Saw and Plane.....	40&10&24
J. B. Smith & Co.'s Pat. File.....	50

Hangers—

Barn Door, New England.....	70&70&24
Barn Door, old patterns.....	70&70&24
Barry.....	60
Best Anti-Friction.....	60&10&24
Carrier Steel Anti-Friction.....	60&10&24
Champion.....	60&10
Chicago Anti-Friction.....	60&10
Climax Anti-Friction.....	60
Cincinnati Nos. 1, \$2.25; 2, \$2.50; 4, \$2.60.....	60&10&24
Crescent.....	60&10&24
Cronk's Patent, Steel Covered.....	60&10
Duplex (Wood Track).....	60&10&24
Economy, \$6.00.....	60&10
Hamilton Wrought Steel Track.....	60
Interstate.....	60&10&24
Kidder's.....	60&10&24
Lane's New Standard.....	60&10&24
Lane's Parlor.....	40
Lane's Standard.....	60&10&24
Lundy, Steel Parlor.....	40
Magic.....	45&10
Matchless.....	60&10
Moody.....	35
Moore's Baggage Car Door.....	33&4
Moore's Elevator.....	33&4
Moore's Railroad.....	65
Nickel, Steel, Nos. 0, \$2.25; 1, \$2.20; 2, \$1.65.....	40&10&24
Orleans Steel.....	65
Paragon Nos. 5, 6, 7 and 8.....	20&10
Pendulum, Payson's.....	40&10&24
Perfection.....	60&10&24
Richards.....	30&10&24
Samson Steel Anti-Friction.....	65
Star.....	40&10&24
Stearns' Anti-Friction.....	40&10&24
Stearns' Challenge.....	25&10&24
Sterling.....	60&10&24
Terry's Ideal.....	60&10&24
Terry's Modern.....	60&10&24
Terry's Shield.....	60&10&24
Terry's Solid.....	60&10&24
Terry's Wrought Strap.....	60&10
Victor, No. 1, \$15.00; No. 2, \$16.00.....	30
Warner's Pat.....	20&10&24
West Wild.....	45&10
Zenith for Wood Track.....	65

Harness Snaps—See Snaps.**Hatchets—**

American Axe and Tool Co.....	
Blood's.....	
Hunt's.....	40 & 10
Hurd's.....	@
Mann's.....	40 & 10
Peck's.....	85
Underhill's.....	
C. Hammond & Son.....	
Fayette R. Plumb.....	10
Collins.....	
Buffalo Hammer Co.....	10
Kelly's.....	
P. S. & W. Co.....	50 & 50
Sargent's & Co.....	& 10
Schulte, Lohoff & Co.....	
Ten Eyck Edge Tool Co.....	

Hay and Straw Knives

See Knives.

Hinges—**Blind Hinges—**

Clark's Nos. 1, 3, 5, 1868, Old Pattern.....	75&10&5
Nos. 1 and 3, Tip Pattern.....	75&10&5
No 5, Buffalo Noiseless.....	40, 60 and 65
Buffalo Reversible, Nos. 3, 2, 1, 70&5	
1 and 0.....	70&5
No. 1, Cottage, for wood only.....	80&10
No. 1, Diamond, for wood only.....	80&5
Dixie L. & P., Nos. 3, 2, 1, 1, 0, 00, 1 and 5.....	75&10
No. 25, Empire Reversible.....	75&10
Lull & Porter, Nos. 3, 2, 1, 1, 0, 00, 4 and 5.....	75&10
Mortise Gravity, Nos. 2, 1, 4, 4, 6, 8, 9 and 10.....	50
Huffer.....	60
North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....	10
Reading's Gravity.....	75&10
Sargent's Nos. 1, 3, 5, 11, 12, 13.....	75&10

Gate Hinges—

Automatic.....	doz \$12.50, 50
Clark's, Nos. 1, 2, 3.....	60&10&24
N. E.....	doz \$7.80, 80&10&24
N. E. Reversible.....	doz \$5.60, 60&10&24
N. Y. State.....	doz \$4.90, 60&10&24
Western.....	doz \$4.20, 60&10&24

Spring Hinges—

Acme.....	30
American, Gem and Star.....	20
Bardsley's Patent Checking.....	25
Barker's Double Acting.....	25
Bommer's Japanese.....	30
Bommer's All other Kinds.....	30
Buckman's.....	15&20
Champion.....	40
Chicago.....	30
Devore, No. 1.....	gro \$13.00
Empire and Crown.....	30
Freepot.....	gr \$12.00
Geer's Spring and Blank Butts.....	40
Hero and Monarch.....	55
Ideal No. 3.....	gross \$10.00
J. G. C. Covered, 1/2 gro.....	30
New Idea Nos. 1 and 10.....	gross \$13.00
New Idea Dbl. Acting.....	45
No. 10 Matchless.....	60
No. 25 Unbreakable.....	60
Oxford.....	20
Reliable.....	60
Rex.....	gr \$13.00
Royal.....	60
Samson.....	60
Stearns' Noiseless Floor Hinge.....	20
set, \$5.00.....	20
Union Mfg. Co.....	25
Union Spring Hinge Co's list, March, 1888.....	20
U. S.....	25&10
Wiles, No. 1, 1/2 gro, \$10; No. 2.....	13

Wrought Iron Hinges—

List February 14, 1891.....	
Corrugated Strap and T.....	50&10&24
Strap and T.....	50&10&24
Plate Hinges, 1/8, 1/2 and 1 in.....	50
"Providence" over 12 in.....	50
Rolled Blind Hinges, Nos. 32 and 34.....	60&10
Rolled Blind Hinges, Nos. 252 and 234.....	55&10
Rolled Plate.....	70&10
Rolled Raised.....	70&10
Screw Hook and Eye.....	1/2 in. \$ 5 1/2
1 in. \$ 6 1/2	
1 1/2 in. \$ 7 1/2	
2 in. \$ 8 1/2	
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Deitz Flat Key.....30¢
Mallory, Wheeler & Co. list July, '88.....6¢10¢70¢
Plate.....33¢42¢
Romer's Night Hatch.....15¢
R. & E. Mfg. Co., list Mar. 20, 1889.....60¢10¢70¢
Sargent & Co. list At. 1.5¢. 60¢10¢70¢
Warner's Burglar Proof.....\$5.00, 60¢
Yale.....net prices

Elevator

Moore's.....38¢42¢

Padlocks

List June 10, 1891.....50¢22¢
Ames Sword Co. up to No. 150.....40¢
Ames Sword Co. above No. 150.....60¢
Barnes Mfg. Co......40¢40¢10¢
Champion Padlocks.....40¢
A. E. Deitz.....40¢
Eagle.....40¢
Eureka, Eagle Lock Co......40¢22¢
E. T. Fraim's Keystone Scandinavian.....70¢
1010 line.....90¢25¢
120 line.....90¢25¢
109 line.....65¢
510 line.....70¢10¢
225, 610 and 200 lines.....70¢
All other numbers.....50¢55¢
Horseshoe.....\$ doz \$9, 50¢60¢10¢
Hotchkiss.....30¢
Nock's.....30¢
Norwich Lock Mfg. Co., old list.....50¢22¢
Romer's Nos. 0 to 91.....30¢
Romer's Scandinavian, &c., Nos. 100 to 605.....15¢
Scandinavian.....90¢50¢
Slavmaker Barry & Co......90¢50¢
No. 1010 line.....90¢50¢
No. 41 line.....60¢
No. 61 line.....60¢
No. 21 line.....80¢
Star.....60¢
Yale Lock Mfg. Co.'s.....net prices

Sash, &c.

Attwell Mfg. Co......25¢33¢42¢
Champion Safety January, 1893, 70¢45¢
Clark's No. 1.....\$1.00, No. 2, \$1.25, No. 3, \$1.50
Common Sense, Jap'd, Cop'd and Br'zed.....\$ gr \$4.00
Common Sense, Nickel Plated.....\$ gr \$10.00
Corbin's Day list Feb. 15, 1886.....60¢
Davis Bronze, Barnes Mfg. Co......60¢
Ferguson's.....33¢42¢
Fish (Liesche's pat.), No. 100, gr. \$3.....60¢
No. 105, gr. \$10.....70¢25¢
Giant, list Jan., 1892.....70¢25¢
Hammond's Window Springs.....40¢
Huglin's New Sash Locks.....25¢55¢25¢
Huglin's Sash Balance.....25¢55¢25¢
Ives' Patent.....60¢10¢20¢60¢10¢10¢
Kempshall's Gravity.....60¢
Kempshall's Model.....60¢60¢10¢
Monarch.....60¢
Payson's Perfect.....60¢10¢10¢
Reading.....60¢10¢60¢10¢10¢
Security.....70¢
Universal.....30¢
Victor.....60¢10¢22¢
Walker's.....10¢
Wolcott's.....60¢10¢25¢

Lumber Tools

Four-ounce bottles.....\$ doz, \$1.75; \$ gross.....\$17.00

Lustro

Four-ounce bottles.....\$ doz, \$1.75; \$ gross.....\$17.00

Machines.**Boring**

Without Augers.....
Douglas.....\$5.50 \$8.75.....50¢
Jennings.....5.50 6.75, 50¢60¢55¢
Snell's, Rice's Pat......5.50 6.75, 40¢10¢10¢
Other Machines.....2.25 2.50.....
Boss, Carpenters.....3.80
Boss, Ship Builders.....3.85
Phillips' Patent.....
With Auger.....7.00 7.50.....
Millers Falls.....7.50.....25¢

Fluting

American 5 in., \$3.00; 6 in., \$3.40; 7 in., \$4.50 each.....35¢
Combined Fluter and Sad Iron.....
Crown 4 1/2 in., \$3.50; 6 in., \$4.00; 8 in., \$5.50 each.....35¢
Crown Hand Fluter, Nos. 1, \$15.00; 2, \$12.50; 3, \$10.00; 4, \$8.25.....30¢
Crown Jewel.....\$3.50 each, 35¢
Domestic Fluter.....each, \$1.50
Eagle 1/2-inch Rolls, \$2.15.....35¢
Eagle, 3/4-inch Rolls, \$2.85.....35¢
Geneva Hand Fluter, White Metal.....\$ doz \$12, 25¢
Knox 1/2-inch Rolls.....\$3.25 each, 35¢
Knock, 6-inch Rolls.....\$3.00 each, 35¢
Shepard Hand Fluter No. 85, per doz.....\$15.50.....40¢
Shepard Hand Fluter No. 96, \$ doz.....\$3.00.....40¢
Shepard Hand Fluter, No. 110, \$ doz.....\$11.00.....40¢

Holting

Moore's Anti-Friction Differential Pulley block.....20¢
Moore's Hand Hoist with Lock Brake.....20¢
Moore's Rope Differential Pulley Block.....60¢
Maris & Beekley (Teal Patent).....30¢
See also Blocks.....

Washing

Fair and Square.....\$ doz \$42.00
Anthony Wayne.....\$ doz, No. 1, \$42; No. 2, \$40; No. 3, \$42
Wayne American.....\$ doz \$38.00
Weissel.....\$ doz \$34.00
Western Star \$ doz, No. 2, \$30; No. 3, \$30

Mallets

B. & L. Block Co., Hickory & L. V......30¢30¢10¢
Hickory.....20¢10¢20¢10¢10¢
Lignumvitae.....20¢10¢20¢10¢10¢

Mattocks

Regular list.....60¢10¢60¢10¢5¢

Measures

Standard Fibreware, No. 1, peck \$ dozen, \$3.50; 1/4-peck, \$3.00

Meat Cutters

See Cutters, Meat.....

Menders, Harness

Per doz.....\$2.00

Milk Cans

See Cans, Milk.....

Mills

Coffee.....
Box and Side, list Jan. 1, 1888.....60¢60¢5¢
Net prices are often made which are lower than above discount.....
American, Enterprise Mfg. Co., list Jan. 17, 1889.....20¢
The Swift, Lane Bros......30¢
Waddell's New Box Mills, Ideal Brand, New List.....60¢

Mining Knives

See Knives, Mining.....

Molasses Gates

See Gates, Molasses.....

Money Drawers

See Drawers, Money.....

Mowers, Lawn

Out of Season.....

Muzzles

Safety.....\$ doz, \$3.00, 25¢

Nails

Cut and Wire.....See Trade Report.
Wire Nails, Papered.....
Association list, May 1, '92.....85¢5¢
Tack Mfrs.' list.....70¢5¢70¢10¢
Hungarian, Finishing, Upholsterers', &c......See Tacks.

Horse

Nos.	7	8	9	10
A. C.	25¢	25¢	25¢	21¢
American	0 1/4	0 1/4	0 1/4	0 1/4
Anchor	23¢	21¢	20¢	19¢
Ausable	28¢	26¢	25¢	24¢
Capewell	19¢	18¢	17¢	16¢
C. B. K.	25¢	23¢	22¢	21¢
Champion	25¢	23¢	22¢	21¢
Champlain	28¢	26¢	25¢	24¢
Clinton, Fin.	19¢	17¢	16¢	15¢
Empire Bronzed	13¢	14¢	15¢	16¢
Essex	28¢	26¢	25¢	24¢
Lyra	9¢	9¢	9¢	9¢
Maud S.	25¢	23¢	22¢	21¢
Northwest'n	25¢	23¢	22¢	21¢
Putnam	23¢	21¢	20¢	19¢
Snowden	9¢	9¢	9¢	9¢
Standard	23¢	21¢	20¢	19¢
Vulcan	23¢	21¢	20¢	19¢
Western	23¢	21¢	20¢	19¢

Picture

Brass Head, Combination list.....50¢10¢
Brass Head, Sargent's list.....60¢10¢10¢
Porcelain Head, Combination list.....40¢10¢
Porcelain Head, Sargent's list.....50¢10¢10¢
Niles' Patent.....40¢

Nail Pullers

See Pullers, Nail.....

Nail Sets

See Sets, Nail.....

Nut Crackers

See Crackers, Nut.....

Nuts

List Dec. 18, 1889.....

Oakum

Best or Government.....\$ doz 6¢4¢7¢
Navy.....\$ doz 5¢6¢5¢
U. S. Navy.....\$ doz 5¢6¢5¢

Oil Tanks

See Tanks, Oil.....

Oilers

Zinc and Tin.....65¢10¢70¢5¢
Brass and Copper.....50¢10¢50¢10¢5¢
Broughton's Brass.....50¢
Broughton's Zinc.....30¢
Malleable, Hammers' Improved, No. 1.....\$3.50; No. 2, \$4.00; No. 3, \$4.50
Malleable, Hammers' Old Pattern, same list.....45¢
Olmstead's Brass and Copper.....50¢
Olmstead's Tin and Zinc.....60¢
Prior's Pat. or "Paragon" Brass.....50¢
Prior's Pat. or "Paragon" Zinc.....60¢10¢10¢
Steel, Draper & Williams.....50¢
Wilmot & Hobbs Mfg. Co., Steel Anti-Rust.....60¢

Openers, Can

American.....\$ gross \$1.75 to \$2.00
Champion.....\$ doz \$2.00.....60¢
Domestic.....\$ doz \$2.00.....45¢
Duplex.....\$ doz 25¢, 15¢20¢
Eureka.....\$ doz \$2.50, 10¢
Excelsior, No. 1 \$2.50; No. 2, \$1.50.....40¢
Lyman's.....\$ doz \$3.75, 25¢
Messenger's Comet.....\$ doz \$5.00, 20¢
Moore's.....70¢
No. 4, French.....\$ doz \$2.25, 55¢60¢
No. 5, Iron Handle.....\$ gr \$5.00, 45¢60¢
Sardine Sclissors.....\$ doz \$2.75 to \$3.00
Sprague, No. 1, 55¢; 2, 60¢; 3, 65¢.....
Star.....\$ doz \$2.75
Universal.....\$ doz \$3.00.....55¢5¢
World's Best \$ gross, No. 1 \$12.00; No. 2, \$24.00; No. 3, \$36.00.....50¢10¢

Packing, Steam

Rubber.....

Standard, fair quality.....70¢70¢10¢
Inferior quality.....75¢80¢
Extra.....80¢60¢5¢
Jenkins' Standard.....\$ doz \$8.00, 25¢25¢5¢
N. Y. B. & P. Co., Empire.....60¢
N. Y. B. & P. Co., Salamander.....25¢
N. Y. B. & P. Co., Standard.....50¢

Miscellaneous

American Packing.....10¢41¢ \$ doz
Cotton Packing.....15¢17¢ \$ doz
Italian Packing.....13¢14¢ \$ doz
Jute.....7¢10¢ \$ doz
Russia Packing.....14¢ \$ doz

Pails

Creamery.....
S. S. & Co. 18-qt., \$7.00; 20-qt., \$7.25
\$ doz.....\$ 5

Galvanized

Quarts 10 12 14
Central Stamping Co......2.50 2.75 3.00
Fire Buckets.....2.75 3.25 3.50
Hill's Heavy Weight.....\$ doz 3.00 3.25 3.75
Hill's Light Weight.....\$ doz 2.75 3.00 3.25
Iron Clad.....2.50 2.75 3.00
Sidney Shepard & Co......2.50 2.75 3.00
Buckets—See Well Buckets.....

Indurated Fiber Ware

Fire Pails, deep.....\$ doz \$4.80
Fire Pails, round bottom.....\$ doz \$5.40
Milk, 14 qt......\$ doz \$5.40
Stable, 14 qt......\$ doz \$6.00
Star Pails, 12 qt......\$ doz \$4.20

Standard Fiber Ware

Buggy Pails.....\$3.00
Chamber Pails, 14 qt......4.00 \$7.00
Sairy Pails, 14 qt......\$ doz 3.75 4.25
Fire Pails, No. 2, 14 qt......\$ doz 4.25
Horse Pails.....4.00
Slop Jars (bal. trap).....7.50 8.50
Sugar Pails.....5.00 5.5
Water Pails, 12 qt......\$ doz 3.15 3.75

Pans

Dripping.....\$ doz 5¢
Large sizes.....\$ doz 6¢4¢
Silver & Co. (Covered).....40¢

Fry

Standard list.....
\$ doz.....\$3.00 \$3.75 \$4.25 \$5.40 \$5.25
No......6 6 7 8
\$ doz.....\$6.00 \$7.00 \$8.00 \$9.00
Polished, regular goods.....75¢75¢10¢
Acme Fry Pans.....60¢4¢

Dust

Steel Edge, No. 1.....\$ doz \$1.75

Roasting and Baking

Columbian, S. S. & Co. Nos. 10, \$2; 20, \$2.50; 30, \$2.50 each.....60¢10¢

Paper and Cloth

Sand and Emery.....
List April 19, 1888.....60¢10¢50¢10¢10¢
Sibley's Emery and Crocus Cloth.....30¢

Parers

Apple.....

Advance.....\$ doz \$4.75
Baldwin.....\$ doz 5.25
Bonzana.....each 5.00
Daisy.....\$ doz 4.00
Dandy.....each 7.50
Eclipse.....\$ doz 4.00
Eureka.....each 16.00
Family Bay State.....\$ doz 12.00
Favorite.....\$ doz 6.00
Gold Medal.....\$ doz 4.00
Ideal.....\$ doz 4.00
Improved Bay State.....\$ doz 27.00 to \$30.00
Little Star.....\$ doz 4.50
Monarch.....\$ doz 18.50
New Lightning.....\$ doz 6.50
Orion.....\$ doz 4.00
Penn......\$ doz 3.00
Perfection.....\$ doz 4.00
Pomona.....\$ doz 4.00
Reading.....\$ doz 4.25
Reading 72.....\$ doz 7.00
Rocking Table.....\$ doz 6.00
Turn Table.....\$ doz 4.50
Victor.....\$ doz 18.50
Waverly.....\$ doz 4.00
White Mountain.....\$ doz 4.00

Potato

Antrim Combination.....\$ doz \$5.50
Hoosier.....\$ doz \$13.50
Saratoga.....\$ doz \$5.50
White Mountain.....\$ doz \$2.50

Pencils, Soapstone

See Crayons.....

Pickers, Fruit

Prize Fruit Pickers.....50¢

Picks

Railroad or Adze Eye, 5 to 6, \$12.00; 6 to 7, \$13.00.....60¢10¢5¢60¢10¢10¢5¢

Picture Nails

See Nails, Picture.....

Pinking Irons

See Irons, Pinking.....

Pins

Bow.....
Humason, Beckley & Co.'s.....60¢10¢
Peck, Stow & W. Co......50¢10¢50¢10¢5¢
Sargent & Co.'s.....\$17 and \$18.....60¢10¢

Escutcheon

Iron, list Nov. 11, 1885.....50¢10¢50¢10¢5¢
Brass.....60¢60¢5¢

Pipe, Wrought Iron

List April 13, 1893.....

1 1/2 and under, Plain.....57¢10¢
1 1/2 and under, Galv......50¢10¢
1 1/2 and over, Plain.....67¢10¢
1 1/2 and over, Galv......67¢10¢
Boiler Tubes, list Oct. 24, 1892.....65¢10¢
Casing, list Nov. 16, 1892.....52¢10¢
Cold Drawn Seamless Steel Tubing.....60¢
Inserted Joints Casing, list Nov. 16, 1892.....47¢5¢
Steel Boiler Tubes.....27¢5¢

Planes and Plane Irons

Wood Planes.....

Molding.....40¢10¢
Bench, First quality.....45¢10¢
Bench, Second quality.....50¢10¢
Bailey's (Stanley R. & L. Co.).....50¢10¢

Iron Planes

Bailey's (Stanley R. & L. Co.).....50¢10¢
Birmingham Plane Co......60¢60¢5¢
Chapin's Iron Planes.....60¢60¢5¢
Davis' Iron Planes.....60¢60¢5¢
Gage Tool Co.'s Self-Setting.....60¢60¢5¢
Meriden Mal. Iron Co.'s.....50¢60¢5¢
Miscellaneous Planes (Stanley R. & L. Co.).....25¢10¢
Sargent's.....60¢60¢10¢
Stanley & Co......60¢60¢5¢
Steers' Iron Planes.....60¢60¢5¢

Plane Irons

Auburn Thistle.....30¢10¢30¢10¢10¢
Buck Bros.....60¢
Butcher's.....\$5.00 to \$5.25 to a

Ohio.....30¢10¢30¢10¢10¢
Sandusky.....50¢10¢
Stanley R. & L. Co......50¢10¢
L. & I. J. White.....25¢

Plates

Fellce.....\$ doz 6¢6¢4¢

Pliers and Nippers

Button's Patent.....60¢
Carew's Pat. Wire Cutters.....20¢
Cronk's 8 in. 15.00; 10 in......\$20
Cronk's Button Pattern.....50¢10¢60¢
Cronk's Carrier Pliers.....60¢60¢5¢
Eureka Pliers and Nippers.....40¢
Gas Pliers.....6

Pullers Nail—

Scranton..... \$ doz., \$18.00, 38¢
 Giant, No. 1..... \$ doz., \$18.00, 10¢
 Giant, No. 2..... \$ doz., \$15.00, 10¢
 Pelican..... \$ doz., \$9.00, 25¢
 Eclipse..... \$ doz., \$24.00, 40¢
 Economy..... \$ doz., \$6.00

Pulleys—

Hot House, Avning, & Co..... 60¢@70¢
 Japanned Screw..... 60¢@10¢
 Brass Screw..... 70¢
 Japanned Side..... 60¢@10¢
 Moore's Side, Anti Friction..... 50¢
 Moore's Ceiling or End, Anti-Friction..... 40¢
 Moore's Dumb Waiter, Anti-Friction..... 50¢
 Moore's Electric Light..... 30¢
 Japanned Clothes Line..... 60¢@10¢
 Hay Fork, Solid Eye, \$4.00; Swivel, \$4.50..... 60¢@10¢
 Hay Fork, "Anti-Friction," 5 in. solid, \$5.70..... 60¢@10¢
 Hay Fork, "F" Common and Patent Bushed..... 20¢
 Hay Fork, Tarbox Pat. Iron..... 20¢
 Hay Fork, Reed's Self-Lubricating..... 60¢
 Hay Fork, Moore's Anti-Friction 5 in. Wheel, \$ doz., \$12.00..... 40¢
 Shade Rack..... 40¢
 Tackle Blocks—See Blocks..... 50¢
 Shepard's Niagara, No. 25, \$ doz 23¢ net Sash (Auger Mortise)..... 60¢
 Common Sense..... 60¢
 Empire..... 60¢
 Ideal, Nos. 2, 4, 10 & 15, 40¢ less 1¢ Star..... 40¢ net.
 On bbl. lots extra 5¢
 Ideal, Nos. 25 and 65, \$ doz. 22¢ net.

Pumps—

Cistern, Best Makers..... 60¢@10¢
 Pitcher Spout, Best Makers..... 67¢@70¢
 Pitcher Spout, Cheaper G'ds. 75¢@75¢
 Myers' Pumps, low list.

Punches—

Saddler's or Drive, good..... \$ doz., 60¢@65¢
 Bemis & Call Co.'s Cast Steel Drive..... 50¢@55¢
 Bemis & Call Co.'s Springfield Socket..... 65¢
 Spring, good quality, \$ doz., \$2.50@2.80
 Spring, Leach's Pat..... 15¢
 Bemis & Call Co.'s Spring..... 50¢@55¢
 Bemis & Call Co.'s Cheeks..... 55¢
 Solid Timmers', P. S. & W. Co., \$ doz., \$1.44..... 55¢
 Timmers' Hollow Punches, P. S. & W. Co..... 20¢@25¢
 Rice Hand Punches..... 15¢
 Avery's Reversing Punch..... 40¢
 Avery's Sawset and Punch—See Sawsets
 Niagara Hollow Punches..... 20¢@25¢
 Niagara Solid Punches..... 50¢

Rail—

Sliding Door, Wrt Brass..... \$ B, 35¢, 40¢
 Sliding Door, Bronzed Wrt Iron..... \$ ft., 4¢, 40¢
 Sliding Door, Iron, Painted..... \$ ft., 4¢, 40¢
 Barn Door, Light, In. 1/4..... \$
 Per 100 feet..... \$2.00 2.50 3.10, 10¢
 B. D. for N. E. Hangers.....

Small. Med. Large.
 Per 100 feet..... \$3.15 2.70 3.25 Net
 Terry's Steel Rail..... \$ ft., 4¢
 Victor Track Rail, 7 1/2" foot..... 40¢@50¢
 Carrier, double braced, Steel Rail..... 40¢
 foot.....
 Lundy Parlor Door, Planed Edge..... \$ ft., 7¢
 Moore's Steel Rail..... 25¢@10¢
 Moody Steel Rail..... \$ ft., 6¢..... 45¢

Rakes—

Cast Steel, Association G'ds..... 70¢@70¢@5¢
 Cast Steel, outside G'ds..... 70¢@70¢@5¢
 Malleable..... 70¢@70¢@5¢
 Gibbs' Lawn Rake..... \$ doz., \$4.00
 Gibbs' Canton Lawn Rake..... \$ doz., \$3.75
 Gibbs' Acme Lawn Rake..... \$ doz., \$4.75
 Gibbs' Favorite Lawn Rake..... \$ doz., \$3.80
 Gibbs' Crown Lawn Rake, No. 1..... \$ doz., \$4.90; No. 2, \$3.50
 Oneida Lawn Rake..... \$ doz., \$6.00
 Fort Madison Prize Bow Brace..... 65¢
 Peerless..... 65¢
 Fort Madison Steel Tooth Lawn Rake, \$6.00..... 25¢

Razors—

J. R. Torrey Razor Co..... Net prices
 Wostenholm and Butcher, \$10 to 20¢
 Jordan's AAAI, new list..... Net prices
 Jordan's Old Faithful, new list..... Net prices
 Galvanic..... \$ doz., \$15.00
 Electric Cutlery Co..... Net prices
 Campbell Cutlery Co..... 50¢

Razor Straps—

See Straps, Razor.

Registers —

Moore's Japanned..... 75¢
 Moore's Electroplated..... 75¢
 Moore's Bronze Finishes..... 70¢
 Moore's Solid Bronze..... 65¢
 Moore's Stove Pipe..... 35¢

Rings and Ringers—

Bull Rings—
 Union Nut Co..... 55¢
 Sargent's..... 75¢@10¢
 Hotchkiss' low list..... 30¢
 Humason, Beckley & Co.'s..... 70¢@10¢
 Peck, Stow & W. Co.'s..... 50¢@10¢
 Ellrich Hdw. Co., White Metal, low list..... 50¢@10¢

Hog—

Top of the Hill Ringers..... \$ doz 2.00
 Top of the Hill Ringers..... \$ doz 1.25
 Hill's Improved Ringers..... \$ doz 1.25
 Hill's Old Style Ringers..... \$ doz 1.25
 Hill's Tongs..... \$ doz 3.00
 Hill's Rings..... \$ doz bxs 1.00
 Perfect Rings..... \$ doz bxs 1.50
 Perfect Ringers..... \$ doz 2.15@2.25
 Blair's Hog Ringers..... \$ doz 2.00
 Blair's Hog Ringers..... \$ doz 90¢@1.00
 Champion Ringers..... \$ doz 2.00
 Champion Ringers, Double..... \$ doz 2.25
 Brown's Ringers..... \$ doz 2.00
 Brown's Ringers..... \$ doz 1.15@1.25
 Electric Hog Ringers..... \$ doz bxs 1.50
 Electric Hog Ringers..... \$ doz 2.00
 Major Ringers..... \$ doz 1.25
 Major Ringers..... \$ doz 2.00

Rivets and Burrs—

Norway Iron, list Nov. 17, '87..... 60¢@10¢
 Second quality..... 70¢
 Copper..... 60¢@10¢
 Copper Iron, Betina Brand..... 50¢@5¢

Rivet Sets—See Sets.**Roasting and Baking Pans—See Pans, Roasting and Baking.****Rods—**

Stair, Brass..... 25¢@30¢
 Stair, Black Walnut..... \$ doz 40¢

Rollers—

Barn Door, Sargent's list..... 60¢@10¢
 Acme Moore's Anti-Friction..... 55¢
 Union Barn Door Roller..... 70¢
 Moore's Barn Door Stay..... 50¢
 Thompson Mfr. Co.'s Lawn Rollers..... 30¢

Rope—The following prices are f.o.b.

New York or factory, and are shaded 1/4¢@1/2¢ on large lots; terms, 1 1/2% for cash.
 Manila, 7-16 in. diam. and larger..... 7 1/4¢ 8¢
 Manila, 1/4 and 5-16 in. diam..... 8 1/4¢ 9¢
 Manila, Tarred Rope..... 7 1/4¢ 7 1/2¢
 Manila, Hay Rope, Med'm..... 7 1/4¢ 8¢
 Sisal, 7-16 in. and larger..... 5 1/4¢ 5 1/2¢
 Sisal, 1/4 and 5-16 in. diam..... 7 1/4¢ 7 1/2¢
 Sisal, Hay Rope..... 5 1/4¢ 5 1/2¢
 Sisal, Tarred Rope..... 5 1/4¢ 5 1/2¢
 Sisal, Medium Lath Yarn..... 5 1/4¢ 5 1/2¢
 New Zealand..... 7-16 in. and larger..... 5 1/4¢ 5 1/2¢
 New Zealand..... 1/4 inch..... 5 1/4¢ 5 1/2¢
 New Zealand, Hay Rope..... 5 1/4¢ 5 1/2¢
 New Zealand, Tar'd Rope..... 5 1/4¢ 5 1/2¢
 Cotton Rope..... \$ B 13¢@10¢
 Jute Rope..... \$ B 6¢@7¢

Wire—

List February, 1892. All kinds..... 45¢

Rules—

Boxwood..... 80¢@10¢@80¢@10¢@10¢
 Starrett's Steel Rules and Straight Edges..... 25¢@10¢

Sad Irons—See Irons, Sad.**Sand and Emery Paper and Cloth—**

See Paper and Cloth.

Sash Cord—See Cord, Sash.**Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

Sausage Stuffers or Fillers—

See Stuffers or Fillers, Sausage.

Saws—

Note.—Extra 5¢@10¢ often given.

Diston's Circular..... 45¢@5¢
 Diston's Cross Cut, list Jan. 1, '93, 40¢@10¢
 Diston's Hand..... 25¢
 Woodrough & McFarlin..... 25¢@10¢
 Hand, Panel and Rip..... 25¢@10¢
 Cross Cuts, list Jan. 1, 1893..... 45¢@10¢
 Wheeler, Madden & Clemon Mfg. Co..... 40¢@10¢
 Hand, Panel and Rip..... 30¢@10¢
 Cross Cuts, list Jan. 1, 1893..... 45¢@10¢
 Atkins' Circular..... 50¢@10¢
 Atkins' Cross Cuts, new list..... 40¢
 Atkins' Mulay, Mill and Drag..... 50¢@10¢
 Atkins' One-Man Saw..... 40¢
 Atkins' Panel and Rip..... 45¢@10¢
 Peace Circular and Mill..... 45¢@10¢
 Peace Hand Panel and Rip..... 25¢@10¢
 Peace Cross Cuts, list Jan. 1, '93..... 45¢@10¢
 Richardson's Circular and Mill..... 45¢@10¢
 Richardson's X Cuts, list Jan. 1, '93, 45¢@10¢
 Richardson's Hand, &c..... 25¢@10¢
 F. Tennings & Co..... 25¢
 Simonds' Circular Saws..... 45¢@10¢
 Simonds' Crescent Ground Cross Cut Saws..... 30¢
 Simonds' Gang, Mill, Mulay and Drag Saws..... 45¢@10¢

Hack Saws—

Griffin's, complete..... 40¢@10¢
 Griffin's Hack Saw Blades..... 40¢@10¢
 Star Hack Saws and Blades..... 25¢
 Eureka and Crescent..... 25¢

Scroll—

Lester, complete, \$10.00..... 25¢
 Rogers, complete, \$4.00..... 25¢
 Barnes' and Makers' \$15.25..... 35¢
 Barnes' Scroll Saw Blades..... 35¢

Saw Frames—

See Frames, Saw.

Saw Sets—See Sets, Saw.**Saw Tools—See Tools, Saw.****Scales—**

Hatch, Counter, No. 171, good quality, \$18.00..... \$19.00
 Hatch, Tea, No. 161..... \$ doz \$5.60@5.70
 Union Platform, Plain..... \$ doz \$2.00@2.20
 Union Platform, Stair..... \$ doz \$2.40@2.60
 Chatillon's Grocers' Trip Scales..... 25¢
 Chatillon's Eureka..... 25¢
 Chatillon's Favorite..... 40¢
 Family Turnbells..... 30¢@10¢
 Riehle Bros' Platform..... 40¢

Scale Beams—

See Beams, Scale.

Scissors, Fluting—45¢**Scrapers—**

Adjustable Box Scraper (S. R. & L. Co.)..... 40¢@10¢
 Box, 1 Handle..... \$ doz \$2.00
 Box, 2 Handle..... \$ doz \$3.00@2.00
 DeLancey Box and Ship..... 50¢@10¢
 Foot, Common..... \$ doz \$3.60
 Ship, R. I. Tool Co..... 10¢

Screen Window and Door

Frames—See Frames

Screw Drivers—

See Drivers, Screw

Screws—**Bench and Hand—**

Bench, Iron..... 55¢@10¢@55¢@10¢
 Bench, Wood, Beech..... \$ doz \$2.25
 Bench, Wood, Hickory..... 20¢@10¢
 Hand, Wood..... 25¢@10¢@25¢@10¢
 Hand, Grand Rapids, list..... 35¢

Coach, Lag and Hand-Rail—

Lag, Blunt Point, list Jan. 1, 1890..... 80¢@10¢@80¢@25¢
 Coach and Lag, Gimlet Point, list Jan. 1, 1890..... 80¢@10¢@80¢@25¢
 Hand Rail, Sargent's..... 70¢@10¢
 Hand Rail, H. & B. Mfg. Co..... 70¢@10¢
 Hand Rail, Am. Screw..... 75¢

Jack Screws—

Jack Screws, Millers Falls list..... 50¢@10¢
 Jack Screws, P. S. & W..... 35¢
 Jack Screws, Sargent..... 70¢
 Jack Screws, Stearns..... 40¢@10¢

Cork—

Humason & Beckley Mfg. Co. 40¢@10¢@50¢
 Williamson's..... 35¢@35¢@5¢
 Wood, Forged Work, Applewood Handle, \$ doz., \$5.00; Rosewood, \$5.50..... 40¢
 Detroit Cork Screw Co..... 35¢@5¢

Machine—

Flat Head Iron..... 65¢
 Round Head Iron..... 80¢

Wood—

List January 1, 1891.
 Flat Head Iron..... 70¢
 Round Head Iron..... 65¢
 Flat Head Brass..... 70¢
 Round Head Brass..... 65¢
 Flat Head Bronze..... 70¢
 Round Head, Bronze..... 65¢
 Rogers' Drive Screws..... 82¢@6¢

Scroll Saws—See Saws, Scroll.**Scythes—**

Ivory..... 40¢@5¢@40¢@10¢
 Grass..... 40¢@10¢@50¢

Sythe Snaths—

See Snaths, Scythe.

Sets—

Awl and Tool—
 Alken's Sets, Awls and Tools..... 80¢@80¢5¢
 Fry's Ad. Tool Hds., Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9..... 45¢
 Millers Falls Ad. Tool Hds., No. 1, \$12; No. 4, \$12; No. 5, \$18..... 25¢
 Henry's Combination Haft..... \$ doz \$8.50
 Stanley's Excelsior..... No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50..... 30¢@10¢
 Common Brad Sets..... No. 42, \$10.50; No. 43, \$12.50..... 70¢@10¢5¢

Nail—

Square..... \$ gr \$4.00@4.25
 Round..... \$ gr \$3.25
 Buck Bros..... 27¢@3¢
 Cannon's Diamond Point..... \$ gr \$12.20

Rivet—

Regular list..... 70¢

Saw—

Stillman's Genuine..... \$ doz \$5.00@7.75, 40¢@5¢
 Stillman's Pattern, Hand, \$ doz \$3.25
 Cross Cut, \$6.50..... 55¢@5¢@10¢
 Cross Cut, \$2.00..... 40¢@20¢
 Morrill's No. 1, \$15.00..... 40¢@20¢
 No. 11, \$16.00..... 40¢@20¢
 Nos. 3 and 4, Cross Cut, \$23.00..... 40¢@20¢
 No. 5, Mill, \$31.00..... 40¢@20¢
 No. 10, \$15.50..... 40¢@20¢
 Leach's, No. 0, \$8.00; No. 1, \$15.15@20¢
 Nash's, No. 1, \$20.00..... 40¢@20¢
 Hammer, Hotchkiss..... \$5.50, 10¢
 Hammer, Bemis & Call Co.'s new Pat. 45¢
 Bemis & Call Spring Hammer..... 30¢@5¢
 Bemis & Call Co.'s Plate..... 20¢
 Bemis & Call Co.'s Cross Cut..... 30¢@5¢
 Aiken's Genuine..... \$13.00, 50¢@10¢@0¢
 Aiken's Imitation..... \$ doz \$3.00@3.25
 Hart's Pat. Lever..... 20¢
 Diston's Star..... 25¢
 Leopold..... 40¢@10¢@50¢
 Aiken's Lever..... \$ doz No. 1, \$6.00
 Aiken's Criterion..... \$ doz No. 1, \$6.00
 Croissant (Keller), No. 1, \$15.00; No. 2, \$10.00..... 40¢@10¢@50¢
 Avery's Saw Set and Punch..... 50¢
 Kohler's Royal..... \$ doz \$7.00
 Kohler's Giant Royal..... \$ doz \$12.00
 Crescent..... \$ doz \$3.00
 Lloyd's Acme..... \$ doz \$15, 40¢@10¢
 Taintor Positive..... \$ doz \$18, 50¢

Sharpeners, Knife—

Larkins.....
 Applewood Handles..... \$ doz \$8.00, 40¢
 Rosewood or Cocobola..... \$ doz \$9.00, 40¢

Shaves, Spoke—

Iron..... 45¢
 Wood..... 30¢
 Bailey's (Stanley R. & L. Co.)..... 50¢@10¢
 Stearns..... 30¢@10¢
 Cincinnati..... 25¢@10¢
 Goodell's \$ doz. \$9.00..... 25¢

Shears—

American (Cast) Iron..... 75¢@10¢@75¢@10¢5¢
 Barnard's Lamp Trimmers..... \$ doz \$3.75
 Seymour's, list Dec. 1881..... 60¢@10¢@60¢@10¢@5¢
 Heinisch's, list Dec. 1881..... 60¢@10¢@60¢@10¢@5¢
 Heinisch's Tailor Shears..... 35¢@5¢
 Cast Steel Trimmers:
 First quality..... 80¢@10¢
 Second quality..... 80¢@10¢@80¢@10¢
 Acme Cast Shears..... 10¢@10¢
 Diamond Cast Shears..... 10¢
 Clipper..... 10¢@10¢
 Victor's Shears..... 75¢@10¢@75¢@10¢
 Howe Bros. & Hulbert, Solid Forged Steel..... 40¢
 Hatch Cutlery Co., Solid Steel Forged..... 60¢
 Davenport Cutlery Co..... 60¢@10¢
 Clausen brand, Japanned..... 70¢
 Clausen brand, Nickel, same list..... 60¢
 Galvanic 3/4 to 9 in., \$ doz. \$1.00 \$ inch..... 80¢
 Electric Cutlery Co..... 75¢
 Campbell Cutlery Co., Jap'd..... 65¢
 Nickel Plated..... 65¢

Timmers' Snips—

Wrt. Handles, Steel Blades..... 20¢@20¢@10¢
 Niagara Snips and Shears..... 20¢@10¢
 Cast Handles, Laid with Steel..... 40¢

Pruning Shears and Hook

Diston's Combined Pruning Hook and Saw..... \$ doz \$18.50, 50¢@10¢
 Diston's Pruning Hook, \$ doz..... 20¢@10¢
 E. S. Lee & Co.'s Pruning Tools..... 50¢@10¢@70¢
 Pruning Shears, Henry's Pat. \$ doz..... 35¢@34¢, 40¢
 Henry's Pruning Shears, \$ doz \$4.25..... 40¢@50¢
 Wheeler, M. & C. Co., Combination..... \$ doz \$12.00
 Dunlap's Saw and Chisel, \$ doz \$8.50, 30¢
 J. Mallinson & Co., No. 1, \$5.25; No. 2, \$7.25
 P. S. & W. Co..... 60¢
 Levin Pruner No. 1, \$15.00 \$ doz..... 40¢@34¢
 Levin Pruner No. 2, \$21.00 \$ doz..... 40¢@34¢

Timmers', &c.—

Shears and Snips (P. S. & W.)..... 20¢@25¢
 Snips, J. Mallinson & Co..... 33¢@1¢

Sheaves—

Sliding Door—
 M. W. Co., list July, 1888..... 50¢@10¢@60¢@5¢
 R. & E., list Dec. 18, 1885..... 55¢@20¢
 Corbin's list..... 60¢@10¢@25¢
 Patent Roller..... 60¢@10¢@25¢
 Patent Roller, Hatfield's..... 75¢
 Russell's Anti-Friction, list Dec. 18, 1885..... 60¢@25¢
 Moore's Anti-Friction..... 50¢

Sliding Shutter—

R. & E., list Dec. 18, 1885..... 60¢@10¢@25¢
 Sargent's list..... 70¢
 Reading list..... 60¢@10¢@10¢

Shells—

First quality 4, 8, 10 and 12 gauge..... 25¢@10¢@25¢
 First quality Rival, Club and Climax brands, 14, 16 and 20 gauge (\$7.50 list)..... 20¢@10¢@25¢
 Prize..... 40¢@25¢
 Star, Club, Rival and Climax Brands..... 55¢@10¢@25¢
 Smokeless brand, 12, 10, 16 gauge..... 35¢@10¢@25¢
 Trap brand, 12 and 10 gauge, 35¢@10¢@25¢
 Seibold's Comb. Shot Shells..... 15¢@25¢
 Brass Shot Shells, list quality..... 60¢@25¢
 Brass Shot Shells, Club, Rival, Climax..... 65¢@25¢

Shells, Loaded—

Standard List, July 19, 1890..... 40¢@10¢@40¢@10¢@5¢
 7¢ cash, 10 days.

Ship Tools—

L. & J. White..... 20¢@5¢

Shoes, Horse, Mule, &c.

Horse—
 Burden's Perkins', Phoenix, Standard, Diamond State, Bryden's Boss and Crescent, at factory..... \$4.00
 Bryden's Frog Pressure, at factory..... \$5.00

Mule—

Add 1¢ keg to above prices.

Ox Wrought—

Ton lots..... \$ B 9¢
 1000 lb lots..... \$ B 9¢@6¢
 500 lb lots..... \$ B 10¢

Shot—

Drop, up to B, 25-m bag..... \$1.35
 Drop, up to B, 5-m bag..... 35¢
 Drop, 25-m bag, larger, 25-m bag..... 1.60
 Drop, B and larger, 5-m bag..... .40
 Buck and Chilled, 25-m bag..... 1.60
 Vash's Black and Chilled, 5-m bag..... 2.00
 Dust Shot, 25-m bag..... 2.00
 Dust Shot 5-m bag..... .45

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885..... 20¢
 Note.—Jobbers frequently give 5¢@7¢ extra on above.
 Griffith's Black Iron..... 50¢@10¢
 Griffith's C. S..... 60¢@10¢@5¢
 Griffith's Solid C. S. R. H. Goods..... 20¢
 St. Louis Shovel Co..... 20¢@20¢@7¢
 Hussey, Blane & Co..... 15¢@25¢
 Hubbard & Co..... 20¢@20¢@7¢
 Lehigh Mfg. Co..... 50¢@10¢
 H. M. Myers Co..... 30¢
 Payne Pettibone & Son..... 40¢@10¢

Snaps, Harness, &c.

Anchor (T. & S. Mfg. Co.)	50¢
Fitch's (Bristol)	50¢
Hotchkiss	10¢
Andrews	70¢
Sargent's Patent Guarded	10¢
German, new list	50¢
Covert, New	50¢
Covert, New R. E.	50¢
Covered Spring	50¢
Covert's Saddlery Works' Triumph	35¢
John Protz Snaps	70¢
Kelley & Woolworth's Steel Harness	50¢

Snaths—

Scythe	50¢
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Soldering Irons—

See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—	
Cuspidors, 8 1/2-inch, # doz. No. 5, #3; No. 5X, #9.	
Spittoons, Daisy, 8-inch, No. 1, 4; 10 and 11 inch, #6.	

Spoke Shaves—

See Shaves, Spoke.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—**Tinned Iron—**

Basting, Cen. Stamp. Co.'s list.	70¢
Sold Table and Tea, Cen. Stamp. Co.'s list.	70¢
Buffalo, S. S. & Co.	35¢

Silver Plated—

4 months or 55 cash 30 days:	
Meriden Brit. Co., Rogers	40¢
Rogers & Hamilton	40¢
C. Rogers & Bros.	40¢
Rogers & Bros.	40¢
Reed & Barton	40¢
Wm. Rogers Mfg. Co.	40¢
Simpson, Hall, Miller & Co.	40¢
Holmes & Edwards Silver Co.	40¢
L. Boardman & Son	40¢
Holmes & Edwards Silver Co.	40¢
No. 67 Mexican Silver	50¢
No. 80 Silver Metal	50¢
No. 24 German Silver	50¢
No. 60 Nickel Silver	50¢
No. 49 Nickel Silver	50¢

Miscellaneous—

Wm. Rogers' Silver Metal	50¢
18¢ Rogers' German Silver	50¢
22¢ Rogers' Nickel Silver	50¢
Rogers & Hamilton	40¢
Steel Goods	40¢
Cimeter, Flatware	40¢
Cimeter, Steel Goods	40¢
Crown Hamilton, Flatware and Cutlery	30¢
German Silver	50¢
Nickel Silver	50¢
Britannia	50¢
Boardman's Nickel Silver, list July 1, 1891	50¢
Boardman's Britannia Spoons, case lots	50¢

Spring—**Door—**

Torrey's Rod, 39 in.	1.20
Ward's No. 1, # doz	1.50
Gen (Coll), list April 18, 1885	20¢
Star (Coll), list April 18, 1885	20¢
Victor (Coll)	60¢
Champion (Coll)	60¢
Cowell's, No. 1, # doz	1.50
Rubber, complete, # doz	4.50
Hercules	50¢

Carriage, Wagon, &c.

Elliptic, Concord, Platform and Half Scroll	60¢
CHI's Bolster Springs	25¢

Squares—

Steel and Iron	80¢
Try Square and T Bevels	60¢
Disston's Try Square and T Bevels	50¢
Winterbottom's Try and Miter	30¢
Starrett's Micrometer Caliper Squares	25¢

Avery's Flush Bevel Squares	40¢
Avery's Bevel Protractor	50¢

Squeezers—**Fodder—**

Blair's	50¢
Blair's "Olimax"	50¢
Porcelain Lined, No. 1	50¢

Lemon—

Wood, No. 2	50¢
Wood, Common	50¢
Dunlap's Improved	50¢
Sammie, No. 1, # doz	1.50
Jennings' Star	50¢
The Boss	50¢
Dean's, No. 1, # doz	1.50

Little Giant	50¢
Hotchkiss Straight Flash	50¢
Silver & Co. Glass	50¢

Standard Fiber Ware—

See Ware, Standard Fiber.

Staples—

Barbed Blind, 1/4 in. and larger	7¢
Barbed Blind, 1/4 in.	8¢
Fence Staples, Galvanized	Same price
Fence Staples, Plain	See Trd Rep
Grand Crossing Tack Co.'s list	75¢

Steelyards**Stocks and Dies—**

Blacksmith's	35¢
Waterford's Goods	35¢
Butterfield's Goods	35¢
Lightning Screw Plate	25¢
Reece's New Screw Plates	25¢
Reversible Ratchet	30¢
Gardner	35¢
Green River	35¢

Stops Bench

Morrill's, # doz, No. 1, \$10.00; No. 2, \$11.00	
Hotchkiss	50¢
Weston's, No. 1, \$10.00; No. 2, \$9.00	

McGill's, # doz	35¢
Cincinnati	25¢
Terrill's Nos. 1 and 2, # doz, # No. 3	50¢
Millers Falls	25¢
Stearns	20¢

Stone, Grind—See Grindstones.**Scythe Stones—**

Pike Mfg. Co., list April, 1892. 35¢

Oil Stones, &c.—

Pike Mfg. Co.

Hindustan No. 1, # doz	35¢
Sand Stone	5¢
Turkey Oil Stone, 4 to 8 in.	10¢
Turkey Slips	25¢
Lily White Washita	80¢
Rosy Red Washita	80¢
Washita Stone, Extra	50¢
Washita Stone, No. 1	40¢
Washita Stone, No. 2	30¢
Lily White Slips	90¢
Rosy Red Slips	90¢
Washita Slips, Extra	80¢
Washita Slips, No. 1	70¢
Arkansas Stone, No. 1, 3 to 5 in.	85¢
Arkansas Stone, No. 1 1/2 to 3 in.	35¢

Lake Superior.

Lake Superior Slips. # D 13#

Stove Polish—

See Polish, Stove.

Stretchers Carpet—

Cast Steel, Polished. # doz \$2.2

Cast Iron, Steel Points. # doz \$5.00

Socket. # doz \$1.75

Bullard's. # doz \$2.50

Strop Razor—

Genuine Emerson. # doz \$2.00

Imitation. # doz \$2.00

Torrey's. # doz \$2.00

Marden's Belt and Com. # doz \$2.00

Lamont Combination. # doz \$2.00

Jordan's Pat. Padded, list Nov. 1, '89. 50¢

Electric Cutlery Co. # doz \$1.00

Campbell Cutlery Co. # doz \$1.00

Stuffer, Sausage—

Miles' Challenge, # doz \$2.50

Perry, # doz, No. 1, \$15.00; No. 0, \$21.00

Draw Cut No. 4, each \$30.00

Enterprise Mfg. Co., list Jan 17, '93. 25¢

Silver's. # doz \$2.00

Sweepers, Carpet and Lawn Carpet—

Bissell No. 5. # doz \$17.00

Bissell No. 8. # doz \$20.00

Bissell, Grand. # doz \$38.00

Standard. # doz \$24.00

Domestic. # doz \$21.00

Domestic, No. 2. # doz \$22.00

Grand Rapids. # doz \$24.00

Crown Jewel, No. 1, \$18.00; No. 2, \$19.00

Magic. # doz \$15.00

Improved Parlor Queen, # doz \$27.00

Nicked. # doz \$22.00

Jannaped. # doz \$24.00

Rapid. # doz \$22.00

Garland. # doz \$18.00

Parlor Queen. # doz \$24.00

Housewife's Delight. # doz \$15.00

Ladies' Friend. # doz \$16.00

Ladies' Friend No. 2. # doz \$16.00

Advance. # doz \$19.00

Triumph. # doz \$20.00

Supreme. # doz \$22.00

Easy. # doz \$22.00

Gilt Edge. # doz \$24.00

Acme. # doz \$28.00

Imperial. # doz \$28.00

Grand Republic. # doz \$30.00

Banner. # doz \$30.00

The Star. # doz \$21.00

Reliable. # doz \$22.00

Rapid. # doz \$22.00

Our Own. # doz \$27.00

Model. # doz \$27.00

Goshen Sweeper Company, Grand Rapids, Mich., make the following rebates:

5 dozen in 6 months. # doz \$1.00

10 dozen in 6 months. # doz \$2.00

Except on L.F., when 10 dozen price is \$13.50, and 25 dozen \$18.00.

Lawn—

Thompson Mfg. Co. # doz \$80

Swings—

Davies Lawn. # doz \$25

Tacks, Brads &c.—

List October 19, 1889. Old established straight weights. Short weight goods are sold at lower prices.

Carpet Tacks—

American, Blued. # doz \$6.00

American, Tin'd and Cop'd. # doz \$7.00

Steel, Bright and Blued. # doz \$6.00

Steel, Tinned and Coppered. # doz \$7.00

Swedes Iron, Blued. # doz \$7.00

Swedes Iron, Tinned. # doz \$7.00

American Iron Tacks, Domestic. # doz \$6.00

Swedes Iron Tacks—

S. S., Blued. # doz \$6.00

S. S., Tinned. # doz \$6.00

Lanc., Blued. # doz \$6.00

Lanc., Tinned. # doz \$6.00

Gump and Lace Tacks. # doz \$6.00

S. S., Blued. # doz \$6.00

S. S., Tinned. # doz \$6.00

Lanc., Blued. # doz \$6.00

Lanc., Tinned. # doz \$6.00

Basket and Trimmers' Tacks—

Lanc. # doz \$6.00

S. S. # doz \$6.00

Hanger Nails. # doz \$6.00

Common and Patent Brads. # doz \$6.00

Leathered Tacks. # doz \$6.00

Brush Tacks, S. S. # doz \$6.00

Looking Glass Tacks, S. S. # doz \$6.00

Picture-Frame Points, S. S. # doz \$6.00

Finishing Nails. # doz \$6.00

Trunk and Clout Nails. # doz \$6.00

Black. # doz \$6.00

Tinned or Coppered. # doz \$6.00

Basket Nails. # doz \$6.00

Chair Nails. # doz \$6.00

Oliver Box Nails. # doz \$6.00

Tin Capped Nails. # doz \$6.00

Double Point. # doz \$6.00

Wire Carpet Nails. # doz \$6.00

Claw Handle Carpet. # doz \$6.00

Bonnie Blue. # doz \$6.00

Extra discount 25¢

Bill Nye Brad Box	40¢
Parisian Gilt Nails, cartoon	50¢
Home Tacks, No. 50 # case (12 cartons), \$36.00; No. 100, # case (12 cartons), \$72.00.	
Home Nails, No. 200, # case (12 cartons), \$30.00; No. 400, # case (12 cartons), \$60.00.	
Upholsterers' Nails	50¢

Wire Brads and Nails

Steel-Wire Brads, R. & E. Mfg. Co.'s list 50¢

See also Nails, Wire.**Tanks, Oil—**

Emerald, S. S. & Co.: 30-gal. \$8.75; 60-gal., \$11 each. 50¢

Tapes, Measuring—

Excelsior, Special list. 20¢

Spring. 25¢

Chesterman's, Regular list. 25¢

Thermometers—

Tin Case. 80¢

Thimble Skelns—See Skelns.**Ties, Bale—Steel.**

Standard Wire, list. 50¢

Tinners' Shears, &c.—

See Shears, Tinners' &c.

Tinware—

Stamped, Jannaped and Plated, list Jan 20, 1887. 70¢

Tire Benders, Upsetters, &c.—See Benders and Upsetters.**Tire.****Tobacco Cutters—**

See Cutters, Tobacco.

Tools—Coopers'—

Bradley's. 20¢

Barton's. 20¢

L. & J. White. 20¢

Albertson Mfg. Co. 25¢

Beatty's. 30¢

Sandusky Tool Co. 30¢

Shaves Cincinnati Tool Co. 20¢

Lumber—

Ring Peavies, "Blue Line". # doz \$20.00

Ring Peavies, Common. # doz \$18.00

Steel Socket Peavies. # doz \$21.00

Mail Iron Socket Peavies. # doz \$16.00

Cant Hooks, "Blue Line". # doz \$16.00

Cant Hooks, Common Finish. # doz \$14.00

Cant Hooks, Mail Socket Clasp, "Blue Line" Finish. # doz \$16.00

Cant Hooks, Mail Socket Clasp, Common Finish. # doz \$14.00

Cant Hooks, Clip Clasp, "Blue Line" Finish. # doz \$14.00

Cant Hooks, Clip Clasp, Common Finish. # doz \$12.00

Hand Spikes. # doz 6 ft., \$15.00; 8 ft., \$17.50; 10 ft., \$21.50; 12 ft., \$25.00; 14 ft., \$28.50; 16 ft., \$32.00; 18 ft., \$35.50; 20 ft., \$39.00; 22 ft., \$42.50; 24 ft., \$46.00; 26 ft., \$49.50; 28 ft., \$53.00; 30 ft., \$56.50; 32 ft., \$60.00; 34 ft., \$63.50; 36 ft., \$67.00; 38 ft., \$70.50; 40 ft., \$74.00; 42 ft., \$77.50; 44 ft., \$81.00; 46 ft., \$84.50; 48 ft., \$88.00; 50 ft., \$91.50; 52 ft., \$95.00; 54 ft., \$98.50; 56 ft., \$102.00; 58 ft., \$105.50; 60 ft., \$109.00; 62 ft., \$112.50; 64 ft., \$116.00; 66 ft., \$119.50; 68 ft., \$123.00; 70 ft., \$126.50; 72 ft., \$130.00; 74 ft., \$133.50; 76 ft., \$137.00; 78 ft., \$140.50; 80 ft., \$144.00; 82 ft., \$147.50; 84 ft., \$151.00; 86 ft., \$154.50; 88 ft., \$158.00; 90 ft., \$161.50; 92 ft., \$165.00; 94 ft., \$168.50; 96 ft., \$172.00; 98 ft., \$175.50; 100 ft., \$179.00; 102 ft., \$182.50; 104 ft., \$186.00; 106 ft., \$189.50; 108 ft., \$193.00; 110 ft., \$196.50; 112 ft., \$200.00; 114 ft., \$203.50; 116 ft., \$207.00; 118 ft., \$210.50; 120 ft., \$214.00; 122 ft., \$217.50; 124 ft., \$221.00; 126 ft., \$224.50; 128 ft., \$228.00; 130 ft., \$231.50; 132 ft., \$23

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